UPDATE
Regional reports
Committee roles
ISPO news
Conference

BE INSPIRED
Paralympics
Poetry
Profiles
Charities

LEARNING
Research
Webinars
Online resources
Industry

BRITISH ASSOCIATION OF CHARTERED PHYSIOTHERAPISTS IN AMPUTEE REHABILITATION

AUTUMN 2021 **ISSUE 56**

CONTENTS

NEW OPPORTUNITIES

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CHAIR'S MESSAGE AUTUMN 2021

I would like to focus on a few of the amazing pieces of work the BACPAR Executive Committee does on behalf of our members. Much of this work will be mentioned in the report on the work plan which will be available by the AGM but I wanted to mention a few areas now in the hope that it might encourage some of you to consider taking on some of the roles up for election– more on this and other available posts later in the journal.

- Our brand-new website – I am very excited about this development. The new site enables us to have a much more professional online presence and will also makes membership management more efficient. Do make sure you follow the invitation you have received to set up your portal for maximum access. Hayley and I, and the new Social Media Officer, will be continuing to develop the site. Feel free to give suggestions, provide photos, news articles etc.
- Our ongoing Guideline work – As well as the ongoing work on the PPAM aid and Oedema guidelines the guideline committee are continuing to look into how best we can keep on top of new published work and keep our current work up to date. Why not join this enthusiastic team and develop your skills in this area in support of Rachel as Joint Guideline Officer?
- Our vibrant and fascinating journal – I am very grateful to Sue and Mary Jane, our journal officers, for constantly producing such a professional and varied publication, there is always much to inspire, challenge, educate and inform. Could you join Sue in this role? Mary Jane is happy to continue to support a new Journal Officer for the first year in post; I can't think of a more supportive way of taking on a new role. Don't forget to get involved by submitting letters to the editor, articles, audits, poems, reports, case studies…
- Our presence within Research – Over the last 6 years especially I am amazed at the increase in research going on within our speciality, including by many of our members. Fiona and Chantel, have done a sterling effort promoting this area, encouraging and supporting those considering research, keeping abreast of the new work going on around the UK as well as undertaking their own projects and setting up the Amputation Rehabilitation Research Network. They will both be stepping down this AGM, I do hope that there will be those keen to continue in their footsteps as Research Officer and help us all in this exciting work.
- Our regional reps – Continue to support their local members, not necessarily in the same ways as in the past, with the increased difficulty in running study days, but sometimes in more of an individual supportive role, and have had to embrace online training opportunities with all the fun that has to offer!

I would like to thank all those that will be stepping down from the committee this year, Fiona and Chantel, Midhat (Education, more about an exciting piece of work she has completed in the future) and Adam (Social Media). Also, for those who have handed on their regional rep roles, Hayley, Pip, Kate and Kirsten. Thanks to the new Regional Reps, Fiona and Sally for South Thames and Eleanor and Eve for North Thames. Welcome back also to Sophie for the North West.

A special thank you goes to Mary Jane who has been on the exec committee for more years than I care to remember (and her I expect). She has filled many roles including Chair, Vice Chair, Research Officer, Education Officer and BACPAR Rep to SPARG, as well as her most recent as Journal officer. She has recently retired from her substantive position at St George's University of London (continuing to support teaching on an occasional basis). So, we wish her a happy retirement from academia although, from what we hear and see, she is as busy as ever and continuing to support the London Prosthetics Centre, and hopefully still with the Exec in the years to come.

I look forward to seeing as many of you in December at conference that are able to make it, although I am aware it may still be difficult for many. By next year…?

Julia Earle
Chair

WELCOME

EDITORIAL

Thank you to all contributors. We've been busy, particularly with a late rush of submissions! But don't let what we think is another varied, interesting and informative edition, prevent you from sending us content for Spring 2022!

The long list on the Contents page is testament to what is happening across the BACPAR membership and our MDT colleagues right now and we're confident you'll appreciate there's much to consider in this edition, be it research (progress on work previously shared with members), CPD or experiences members and people with limb loss have shared – some particularly personal, some celebratory – and which we can all learn from. Celebrations of course include ParalympicsGB; we have a Paralympian, a Physiotherapist and a Prosthetist recount their preparations and participation.

Opportunities for development range from activities across the regions (there's a focus on Swansea) with reflections on study days and webinars, to support groups and activities for users. Our member profiles illustrate yet more personal and professional development, always to be acknowledged and celebrated.

We continue to highlight international activities with a feature on the North American company Mission Gait, a focus on Malta and an example of global online teaching. There is news of some charities including LimbPower, and two more which support prosthetic rehabilitation in low and middle-income countries – Elizabeth's Legacy of Hope and 500 miles (the latter currently has a very doable and palatable fundraising campaign). These charities arose through personal experience of limb loss.

Our trend for introducing new aspects to the journal continues. This time we've included an 'Industry' feature with a contribution from Ossur. Pace Rehabilitation also features, highlighting its recent webinar on MPKs. As editors we appreciate your letters and feedback; validation for our efforts to give you quality content. Please continue to let us know what you think, particularly if a feature resonates with you or your service.

Why not use the Journal as a focus for in-service-training? The Article Corner in this year's Spring edition is perfect for a Journal Club (we're waiting for your feedback on this in anticipation of sharing more research papers next Spring). We think the journal provides you with plenty of scope for discussion and potential for personal, professional and service development. Let us know!

Best wishes, Mary Jane and Sue. Joint Journal Officers

Mary Jane Cole

Joint Journal Officer

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Sue lein

Joint Journal Officer

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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 Mary Jane Cole and Sue Lein 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 should be supplied as high resolution (240ppi) jpegs or PDFs as images. They should be emailed as separate files, ideally not already embedded in your text.

INCLUDE YOUR NAME (AND ANY CO-AUTHORS) AND WORK SETTING AT THE TOP OF YOUR ARTICLE, AFTER THE TITLE.

TO ACCOMPANY YOUR SUBMISSION you will need to supply completed Submission and Image Consent Forms (as applicable).

LETTERS TO THE EDITORS

We asked you for feedback on the Journal: here are 3 responses we received

Dear Editors

Although it is quickly turning into autumn, I feel like it was only yesterday that I received my very impressive and more personable 2021 BACPAR spring journal! This edition had a fresher feel to it and wasn't dominated by the COVID-19 conversation (which although relevant can be hard to move away from at times). I went back and re-read the spring journal several times over the summer to refer to the articles on the *EMPOWER ankle, the guideline update, the day in the life feature, Amputee outreach Service* and finally the *BACPAR article corner*.

I loved all of these features and found it fascinating to read about the *Tayside & Fife Amputee Outreach Service* which Louise Whitehead provides. Not just because I love to hear her stories of travelling but to appreciate how integrating rehabilitation post amputation to the users home has such a benefit on them and their families. Much of my research has focussed on the importance of transferring the skills users gain in the outpatients or hospital setting to their own homes and community and Louise demonstrated how a change in Physio service provision due to the pandemic has allowed for such improvements to occur. I hope this acts as the new gold standard to amputee rehabilitation!

Within my role of Specialist prosthetics Service Co-ordinator we were asked to consider provision of the EMPOWER ankle for a user who had been provided one several years earlier. I knew immediately where to turn to read about this and once more picked up my BACPAR journal, so many thanks Haidar Abdala for writing a piece reviewing the literature of the *EMPOWER ankle*; which I sent to our MDT in advance of a more informed discussion.

BACPAR Article Corner was such a useful reference for all the most recent articles in our field. I particularly loved the synopsis that Rachel had written and the questions posed to consider!

Finally I enjoyed the *A day in the life feature* which gave a clear picture of how the team deliver their service during COVID times with social distancing and the use of virtual appointments. I also found it reassuring to read about another centre which was looking at the pros and cons of having more concentrated treatment times with their patients. I look forward to reading about other centres as so often we talk to our BACPAR colleagues but never really appreciate the different ways they deliver their amputee rehabilitation services.

So in summary, thank you BACPAR journal and roll on Autumn!

Fiona Davie-Smith

FEEDBACK ON THE SPRING JOURNAL

Just some personal comments on a couple of articles in the Spring Journal

Firstly, to say how interesting and encouraging I found Louise Whitehead's article on the Outreach Service in Tayside and Fife. This is something that we are also piloting in Belfast as we have sought to make the patient's rehabilitation more focused on their needs and appropriate to their home environment. I just wish that like Louise, we had implemented it earlier during lockdown!

Secondly, Rachel Humperson's BACPAR article corner is a great way to encourage us to dip our toes into reading and critically appraising some articles for our CPD and to consider how evidence-based our interventions are.

Thanks ladies!

C Wilson

Comment on BACPAR article 27.9.21

I was very interested to read Haidar Abdali's article "What are the variables used to assess the effects of the empower ankle and what are the outcomes? A reflection on a literature review" in the BACPAR spring journal 2021. The Empower is marketed as a more energy efficient solution however this is difficult to measure in practise. I wonder if any readers are using or are aware of any outcome measures that measure gait efficiency and/or energy consumption?

Sally Finlay

ELECTION OF BACPAR OFFICERS 2021

(AN UPDATE FROM SPRING 2021 EDITION)

Julia Earle, BACPAR Chair

The following roles are up for election at the 2021 BACPAR AGM in December. Look out for more information by email about how to make nominations or contact the current post holders.

Journal Officer
Mary Jane Cole and Sue Lein have completed their first term sharing this role. They are looking for someone to join the journal team now to learn the ropes, as they will not both be completing a full second term. This role is to plan, organise and collate content for the bi-annual journal and includes liaising with advertisers, the formatter, printer and membership secretary.

Research Officer
Chantelle Ostler and Fiona Davie-Smith have completed their final term sharing this role which is to:

- Facilitate members in undertaking and utilising research to promote BACPAR's research activity and to liaise with the CSP and external research organisations on research issues.
- Signpost to research resources
- Promote latest research findings
- Advise members – and students – on research issues
- Lead on the development and implementation of a research strategy for BACPAR
- Respond to research enquiries
- Advise on the financial and network support which BACPAR can offer to applicants of the research bursary
- Facilitate networking with researchers
- Plan and be involved in events to disseminate research
- Encourage members to contribute to BACPAR guidelines audit
- Act as BACPAR's representative to the Editorial Board of the Journal of Vascular Societies

Guidelines Officer
Rachel Humperson is happy to continue in a second term, if elected, but would value having a vice-guidelines officer to support her in the work, with a view to take on the role when her term comes to an end in 3 years to ease the transition. The role is to:

- Oversee the production, endorsement, publication and review of BACPAR guidelines
- Co-ordinate, facilitate and chair guideline update group meetings
- Disseminate roles, responsibilities and actions within the group
- Liaise with the CSP Professional Advisor.

Social Media Officer
Adam El-Sayed is stepping down from this role which is to:

- To take a lead role in moderating and policing BACPAR Official Facebook and BACPAR Official Twitter pages. Share appropriate content, promote posts on behalf of members and facilitate responses to questions and comments from members and the public
- Build and maintain an appropriate social media network by moderating followers and following/ responding to other appropriate content/pages/ groups.
- Regularly promote and add appropriate content to encourage discussion and dissemination on the appropriate platform.
- Act as administrator and moderator for BACPAR Members Only Facebook group ensuring, that only BACPAR members are members of the group.
- Disseminates content to all members through the Members Only Facebook on behalf of members when required.
- Champions the 'Amputee Rehabilitation' iCSP network and takes the lead in moderating, encouraging discussion and dissemination of related topics
- Upload and monitor content of the BACPAR YouTube channel. Support members to upload and share content on the channel.
- Support the PRO and Chair in managing the BACPAR website

Education Officer
Midhat Adnan is stepping down from this role which she shares with Kimberley Fairer. Kimberley is happy to continue but would like to continue to share the role with another member. The role involves:

- Oversees the collaboration, development and delivery of externally provided post-graduate training endorsed by BACPAR e.g. University of Southampton MSc Amputee Rehabilitation
- Updates the 'Amputation Rehabilitation – Guidance for the Education of Pre-registration Students' every 5 years
- Works with other training providers in development and implementation of training material as appropriate e.g. Humanity and Inclusion UK and Physiopaedia

REGIONAL REPORTS

West Midlands BACPAR Region
Louise Tisdale

We have a membership of approximately 25. We held a Zoom meeting in June: because of low joining numbers we agreed to offer the option of a daytime meeting via Microsoft Teams to enable individuals to join from work rather than Zoom which most Trusts don't allow connection to.

6 members joined our meeting on the 15th September – an additional 3 individuals who had planned to join us were unable to do so (on the day) because of workload pressures. We reviewed a recent publication: Freysteinson WM et al (2021) Development and validation of the mirror image comfort and avoidance scale. Disability and Rehabilitation. https://www.tandfonline.com/doi/full/10.1080/09638288.2021.1945691

The outcome of the discussion re the paper was to implement increased awareness of the potential of mirror discomfort and mirror avoidance – through asking new patients/clients how they feel about the potential of using a mirror during the rehabilitation process and being guided by their response as to whether we ask for psychological support for these specific concerns.

Those not already done so will share the paper with their psychological support staff for considerations.

We plan to meet virtually again in January 2022, trialling a work-time meeting – but later in the afternoon.

South Central BACPAR Region
Tim Randell

If any members have any questions or queries, please contact me: tim.randell@uhd.nhs.uk

In conjunction with key members of the region we are hoping to offer a virtual study day in the near future: currently we are completing peer support virtual meeting. If you are interested, please do contact me.

South Thames BACPAR Region

Fiona Gillow & Sally Finlay

We took over from Hayley Freeman and Pip Joubert as South Thames Region reps in May this year and have thoroughly enjoyed the role so far. We organised a virtual study session on commonly used componentry and basic prosthetic fit and alignment assessment with prosthetist Haidar Abdali on 16th September in response to member's feedback at Wolverhampton BACPAR conference 2019. This was well attended (27 attendees) and we are in the process of reviewing feedback from the session to identify any further learning needs for future sessions.

Ireland BACPAR Region
Carolyn Wilson

It has been another strange 6 months for the service in Belfast. We have been striving to learn lessons from the past year, rebuild services, recommence quality improvement projects, while continuing to manage limitations due to another surge in the rise of COVID numbers in the region.

The acute service has been using the BLARt to do an audit of predicted and actual prosthetic outcomes. We have also been auditing our service against the new BACPAR Prosthetic Guidelines and are seeking to implement changes to improve the areas that have been highlighted by this valuable tool.

East Anglia BACPAR Region

Our region has remained quiet since coming out of lockdown with limited staffing and increased caseloads. We have not had any meetings, either virtually or face to face, but are hoping to do a virtual meeting before the end of the year. We have continued to offer support to our members as required and we look forward to returning to meeting regularly as able.

Yorkshire BACPAR Region
Jack Cawood

The last few months have been a strange period of time with some services looking to return to some form of normality and others unfortunately continued to be severely affected. Also with many people reporting an increased complexity in their caseload this has just added to the pressure services have been under. This has seen activities/meetings stunted within the region due to difficulty in arranging time with one meeting being cancelled due to unavailability.

Looking forward to the next few months we are hopeful that regionally we will be able to offer more and return to some regular meetings to allow our members to collectively reflect on experiences of the last 18 months and share ideas and how people may overcome current difficulties.

Finally we would like to thank everyone with the region who continues to work extremely hard within sustained service pressures. As always if anyone would like to discuss anything with us or has any ideas on anything they would like to happen within the region please feel free to email us. Even if it is just to bounce an idea off.

Northwest/ Mersey BACPAR Region
Sophie Racz

Sophie is now back from maternity leave and will be ongoing with NW representative with support from Sarah Bradbury as both work part time.

No study days planned yet but we are hoping to arrange something face to face in the near future so please keep your eyes peeled for email and updates on the new website for details.

Many clinics in the region not yet up to full capacity pre Covid due to change of gym space use and other clinical demands. Ongoing limitations to number with social distancing in reception areas and change of clinic structure. Services continue to adapt and support each other as much as possible as the Covid situation evolves.

Trent BACPAR Region
Wendy Leonard

We continue to meet 3 monthly via Teams to maintain contact across the region. Our services are slowly building up as are all prosthetic centres in the region.

Part of our meeting includes a 'Problem corner' where we can bring prosthetic or other questions to the group and discuss these between us – we can tap in to the experience that is round the region to learn and share experiences we may have met in the past to solve the problem.

REFLECTIONS ON A BACPAR SOUTH THAMES REGIONAL VIRTUAL STUDY SESSION: PROSTHETICS

Lynsey Arnold, Team Lead Physiotherapist Vascular Services, Eastbourne District General Hospital

On 16/09/21 Prosthetist Haidar Abdali presented an educational webinar on 'Prosthetics'. It was an extremely informative and helpful session – below is a summary of the topics discussed and some personal reflections from it.

Feet

- **SACH** – Solid Ankle Cushion Heel
  - Most basic foot
  - Foot doesn't plantarflex but mimics PF as cushioning allows compression and transfer of WB and rocking over foot. No push off but allows some flexibility. Ottobock ID10 commonly used SACH foot
- **Multi-flex foot**
  - Compression of rubber ring essentially allows foot to PF. Rubber ring allows for inv/eversion and some PF/DF
  - Allows smoother gait than SACH and better for uneven terrain
- **ESR** – Energy Storing and Return (also known as 'carbon foot')
  - For higher activity patients
  - At heel strike, spring is compressed (carbon blade) through loading and the energy is stored throughout the gait cycle, allowing more propulsion at toe off
- **Passively Controlled Articulating Foot**
  - Modern version of multi-flex foot
  - Heel spring in carbon foot (like ESR but with hydraulic unit)
    - Provides comfort and smooth gait
    - Hydraulic unit can slow the mechanism of componentry so not designed for running or fast walking

Reflection

Remember to include outdoor mobility goals on the patient information form for the primary appointment at the prosthetic centre. This may influence the type of foot the client is supplied with for the initial prosthesis. Every component is based on activity levels so the prosthesis is prescribed based on expected activity as this is more cost effective… patients are not just given a basic grade prosthetic because it's their first one.

Knees

Either locked or free

- **SAKL** – Semi-Automatic Knee Lock
  - Can only mobilise with locked knee and hip-hitch gait
  - Lever to unlock knee for sitting but knee locks automatically in standing

- **HOKL** – Hand Operated Knee Lock
- Can mobilise with either locked knee (hip-hitch gait) or free-knee in swing phase

- **Free-Knee**
  - **Single-axis**
    - Not very stable – easily collapses
    - Basic free-knee that only allows movement in flex/ext plane
    - Piston and cylinder with hydraulic allow knee to bend at controlled rate – compressing hydraulics allows user to ride the knee yield
    - Amputee must rely on own musculature for stability
  - **Multi-axis or polycentric**
    - Comes with a HOKL not a SAKL. Multi-axis of turn. Use these as eliminates need for heavy hydraulics – geometrically stable – inherently stable because of the way the axis is designed. Flick forward, thrust stump to allow bend of knee, FWB to extend knee

Suspension

- **Transtibial**
  - **Supracondylar**
    - Trimlines of sockets go over femoral condyles. Clamps over knee and suspends
    - Not the most comfortable but the most practical – commonly used in developing countries as all they need is interface and socket
    - Used with sock interface
  - **Cuff strap**
    - Must sit above patella, not on patella
    - Used with sock interface
    - Useful for adjusting to accommodate volume changes
  - **Thigh corset**
    - Take load onto thigh to reduce pressure on stump
  - **Elastic/Juzo**
    - Socket trim lines don't need to come up as high but can be used with supracondylar as well
    - Used with sock interface
  - **Locking liner (pin)**
    - Lock/pin suspended distally but more likely to get skin issues due to harder end of liner. If this happens, recommend transfer to vacuum sleeve
    - Pin should NOT come loose (be able to be unscrewed) from the liner – if this happens it is very dangerous. Needs to be secured with lock-tight glue
  - **Knee sleeve vacuum**
    - Silicone sleeve with vacuum
    - Silicone sleeves can also be used as suspension without the vacuum and just sock interface
  - **Neoprene**
    - Harder wearing than silicone sleeve (silicone sleeves can split but are more readily available)

- **Transfemoral**
  - **Rigid Pelvic Band (RPB)**
    - Provides mediolateral stability that most transfemorals lack because of muscle instability
  - **TES belt/elastic soft suspension**
    - Less stability than RPB
    - Increased likelihood of pistoning within the prosthesis (although all prosthetic users will get a degree of pistoning despite how good their prosthesis is)
    - Be aware of leg rotation that can occur when tightening up the belt – can cause internal rotation (pigeon-toe walking). Load prosthesis, donn prosthesis in external rotation, pull belt from opposite direction rather than allowing pull of belt to twist prosthesis
  - **Roehampton Soft Suspension (RSS)**
    - More comfortable than RPB

Socket Materials

- **Pelite Liner**
  - Inner liner made from soft foam

- **Hard Socket**
  - Ensure inner liner sinks into the outer socket correctly – equal distance around full length of rim

Interface

- **Socks**
  - Thick and thin to manage volume fluctuation
  - Ensure they are flush when donned with no creases

- **Silicone sock**
  - Helps distribute pressure
  - May be used if there is a particularly bony prominence

- **Silicone/gel liners**
  - Must be donned correctly with NO gap – invert liner completely so end of liner is in full contact with the distal end of residual limb (otherwise it can create an air pocket and cause skin breakdown)

How Does it Work?

- **Transtibial**
  - Main load-bearing area is patella tendon
  - Often referred to as PTB (Patella Tendon Bearing) prosthesis

- **Transfemoral**
  - Main load bearing area is ischial tuberosity
  - Try to avoid trimming the groin area too much (even though tempting due to discomfort) as stability will be lost

Alignment

- **Weight acceptance**
  - Have they got good posture when weight-bearing on the prosthesis?

- **Posture**
  - Are they able to stand fully up-right or is their weight being thrown forwards?
  - Socket may need to be adapted if there is a hip or knee flexion contracture
  - Change of shoes (particularly higher heels) will affect alignment of prosthesis. Educate patients about this. Can use heel wedge inserts but not ideal. Some prostheses adjust automatically to change of shoes or can be changed on app

- **Joint ROM**
  - Is ROM at the hip/knee/ankle affecting the alignment?

- **Joint stabilisation hip/knee**
  - What is their muscle strength like at the hip/knee? Have they got weaker and is this affecting the alignment?

- **Progression**
  - Are they managing to progress with their rehab?

Reflection

Remember to ask the patient at the review appointment if they have changed their shoes! Action: Add this as a prompt to the review form on SystmOne documentation notes.

Socket Issues

- **Volume fluctuation**
  - Likely to occur for 18 months – 2 years post surgery and will also occur throughout the day
  - Muscle atrophy will affect the fit of the prosthesis
  - Woolly worms placed at the bottom of the socket can help with fluctuations in volume
  - Leather lining can be added to reduce socket diameter when residual limb volume reduces (like wearing another sock). Most amputees lose volume proximally just below knee – can use leather liner at top part of socket only in these cases
  - Can also create a 'collar sock' – cut a sock in half and wear the top part like a collar at the proximal end of the stump
  - Advise patients how to manage fluctuations of volume associated with oedema changes and muscle atrophy with different sock combinations and positions. Volume control is an eternal battle!
  - Often changes in residuum can lead to alignment issues – change socket to accommodate volume changes then review alignment

- **Sweat**
  - Best management :take prosthesis off, dry stump and change to dry socks

- **Hygiene**
  - Socks should be washed daily (just like regular socks!)

- **Knee Suspension Sleeve**
  - To don over hard socket: invert to ¾ or ½ – take rolled (inverted end) and stretch over rim of socket, then roll down with hands over socket

Reflection

Check donning/doffing technique at reviews. Often too much information to take in!

Common Questions

- **Can I hop on one leg?**
  - No – need to protect the remaining foot and reduce risk of falls onto stump

- **Can I run?**
  - Yes, but need to be stable walking first!
  - Limited by componentry

- **Sports – cycling/golf/fishing?**
  - Cycling is harder for the transfemoral amputee
  - Cycling for the transtibial amputee may cause pinching at the back of the socket and patient may ask for it to be lowered, however this compromises stability and they will sink further into the socket
  - Water legs – most NHS patients have just one leg

- **Why is the leg so heavy?**
  - The prosthesis will feel heavier if it's loose and not fitting snuggly (like when you hold a load at arm's length from your body)

- **Prescriptions**
  - There are various protocols, specific for each individual (consider K codes and SIGAM grades) – every component is based on predicted activity level. Manufacturers often recommend feet and knees that complement each other

Points following discussion questions

- Knee disarticulation better from prosthetics perspective than transfemoral amputation as the patient can WB through the end of the stump

- The metal bar of the prosthesis does not need to stand completely vertical (exactly 90 degree angle from the foot) as there are various factors that may affect the alignment

- New socket required when patient wearing 3x thick socks (leather liner can be counted as 1x thick sock)

- Discussion re: patient with blisters – physio wondered if it could be a reaction to the new silicone/gel liner she's recently been prescribed…

Reflection

I shared that one of my established amputee patients had to return to a sock fit prosthetic with elastic suspension as she informed me that her new silicone liners had irritated her skin and caused her blisters. The Prosthetist advised that it's actually very rare to have a reaction to the material (silicone) in the liner – the blisters are usually as a result of sweat. This was very helpful feedback as I would have thought that a reaction to silicone liners is more common than it actually is.

EVALUATION OF A CLINICAL STUDY DAY

Hosted by the Artificial Limb & Appliance Centre, Morriston Hospital, Swansea, Wales
Dr Nicola Murphy, Clinical Psychologist & Charlie Crocker, Specialist Physiotherapist

Background

The staff at the Artificial Limb & Appliance Centre (ALAC), Morriston Hospital, Swansea hosted an annual Clinical Study Day in early March 2020. The overarching theme of the day was 'problem solving', and the day was entitled: 'The Problem-Solving Approach to Amputee Rehabilitation'.

A total of 50 delegates attended from Swansea Bay and Hywel Dda University Health Boards, made up of clinicians from various professional backgrounds including Occupational Therapy, Physiotherapy and Nursing within these health board areas.

The aims of the day were twofold: to raise awareness of the work of the ALAC for professionals working in a range of services, and to equip professionals working in various contexts, who may not have prior experience of working with amputees with clinical skills to enhance their work with amputees.

Content of the day

The study day was largely organised by the Occupational Therapist with support from clinicians and administrative staff at the ALAC. It was hosted at the ALAC and was chaired by its Prosthetic Manager. Exhibitors from the field of amputation work held stands throughout the day, where they promoted their services and answered questions.

The day included 30-minute presentations from clinicians from different professions working in the field of amputation. Topics included types and reasons for amputation, psychological effects of amputation, pain management and complex case studies as these were considered to be of most relevance and interest to attendees. In addition, four workshops were held at the end of the day, which were hosted by service users of the ALAC. Within these workshops, delegates had the opportunity to hear the lived experience of amputees, and to ask questions.

Evaluation

47 evaluation forms were completed and analysed using descriptive analysis to compare ratings, and the results are presented in table format (see Table One). Themes were compared from the open-ended questions and are presented in the word cloud in Image One.

	Strongly Disagree	Disagree	Neither Agree nor Disagree	Agree	Strongly Agree
There was enough information				**10**	**37**
I feel more confident about working with lower limb amputees in an acute and rehab setting			**1**	**17**	**29**
I have a better understanding of the criteria/ assessment process for lower limb prosthetics in Morriston ALAC				**10**	**37**
I understand the difference in ability needed to use prosthetic limbs at different levels				**18**	**29**
I have a better understanding of the service at Morriston ALAC				**9**	**38**
I have learnt a lot from the Study Day and feel it was worthwhile				**2**	**45**

Table One (above): Descriptive Analysis

As can be seen, the vast majority of delegates responded to all questions with either **Strongly Agree** or **Agree**, reflecting high satisfaction with the day.

Image One: Thematic Analysis

As can be seen in the word cloud above, the most frequently reported words are those presented in the largest font, with other common words highlighted within the image, including 'Thanks', 'Useful', 'Great' and 'Good' fed back by delegates. Although the delegates did not comment specifically on what they meant by the terms 'Useful', 'Great' and 'Good', it was considered that these were considered in relation to their general view of the day and qualitative feedback highlighted detail in relation to the relevance of the topics as well as the delivery of the presentations.

Although not presented in the image, the delegates highlighted the following presentations as particularly useful: Pain Management, Psychological Effects of Amputation and Complications as an Established Amputee

Suggestions for future development

In terms of areas for development, delegates commented that it would have been useful to have practical demonstrations (e.g., how to don and doff prosthetics), information about the links with inpatient and community services, detail about when prosthetics may not be appropriate and criteria for assessment for prosthetics.

They also highlighted that it would have been helpful to have more detail regarding psychological techniques to apply with service users, to have more information about all stages of rehabilitation from a physiotherapy perspective, as well as PowerPoint handouts to complement the presentations.

It is important to note that the study day included a full programme of presentations, and it was not possible to cover every element of amputee care and rehabilitation within the day. However, the areas noted above should be given consideration when planning future study days, to ensure that these topics are considered for professionals working with amputees within a range of settings.

Conclusion

Overall, the majority of the feedback given by delegates was extremely positive and highlighted that the day was a success. The delegates noted that they had gained a number of skills to take forward into their professional roles and also reflected on how the day was interesting and enjoyable. Many delegates

expressed their thanks for being provided with the opportunity to attend the study day.

From the perspective of the professionals working at the ALAC who organised, attended, or presented at the study day, informal verbal feedback noted that many enjoyed the day and felt that it went well. This view was also supported by service users who presented at the day.

Worldwide events in relation to the COVID-19 pandemic since the study day have affected plans for development of study days in the future. However, this evaluation makes a case for regular study days to be organised within the ALAC in future, to build on the success of the study day discussed, to develop areas for future learning as identified above, and to continue to showcase the work of the ALAC. The team are also hopeful that raised awareness through such training will lead to an improvement in the appropriateness of referrals made to the ALAC, and to the quality of information given to service users thus impacting on their expectations of the service.

REFLECTION ON THE SWANSEA ALAC PHYSIOTHERAPY SERVICE POST COVID 19 PANDEMIC

Swansea Bay UHB ALAC Physiotherapy 2021 Charlie Crocker

The ALAC service closed on Friday 20th March 2020 due to the Covid 19 pandemic. Therapy staff were later redeployed to acute wards in April until further notice. In June 2020, the service began to plan as how to reopen safely. This was led by Peter McCarthy, Prosthetics Manger and consisted of weekly meetings with feedback from Karen James (ICU Physiotherapy Team Lead), regarding the situation on inpatient numbers and services and Peter with feedback from the board on how the service could operate. A plan was submitted to the Health Boards GOLD Committee and was approved with reopening of the service planned for June 29th 2020.

It was evident that the service had to change. Unpredictable elements of the service had to be removed for the service to be managed in a controlled and recordable manner. Ambulance transport patients were stopped, patients had to have their own transport in order to attend and walk-in patients had to cease. The GOLD committee, due to the un-predictableness of numbers, approved these decisions as otherwise this could lead to overcrowding of unscreened and unknown patients in limited areas of space.

On Monday 29th June, the centre reopened with the patient numbers limited to 2 per day per therapist and 3 per consultant clinic. Patient referral numbers to the service had not been as high as expected during the 3.5 months of lockdown (7 in April, 11 in May, 16 in June, 9 in July and 11 in August) and those that had been referred, the majority had been deemed not suitable for the service after consultant review.

Referral numbers over the following six months were in comparison to previous years.

Patients fell in to 3 distinct groups for physiotherapy when the centre re-opened:

1. Those who were already undergoing rehab/awaiting fitting of limbs
2. Those attending the physiotherapy Strengthening and Conditioning group
3. Those referred during lockdown

It was agreed that communication within the team had to be tight for the service to run efficiently and effectively, and for patients to have the minimal number of appointments necessary but still receive a high standard of care and input.

OT, Nursing and PT staff screened patients via telephone and virtual appointments for Consultant Clinic. Those deemed appropriate were then allocated an appointment. Recent training on a new virtual clinic system (Attend Anywhere) had been completed by all therapy staff and was employed with great success within the Physiotherapy Team. It has allowed the physiotherapist to assess a patient's physical abilities, their residuum/s and thus their suitability for attending clinic. It was definitely a positive extra tool for physiotherapy and can be continued to be used.

The table below outlines the differences between pre- and post-Covid pathway for physiotherapy in ALAC:

Pre Covid	Post Covid	Benefits from change	Keep change?
All referrals discussed with consultant and booked into clinic	All referrals discussed between PT, OT and Nurse and prioritised. Pt screened by nurse or OT to assess appropriateness for clinic.	Full MDT review of the patient. Improved prioritising of patients	Yes
Post clinic, patients would either attend S+C group or PPAx with PT	Patients appointed to MDT clinic with Consultant, PT, OT, Nurse and Prosthetist. EWA trial completed, decision made, Pros Ax completed if appropriate in the clinic.	Full assessment of patient Decreased number of appointments Reduced travelling times Better for environment	Yes
Pt would attend for 6 weeks EWA assessment then decision made as to whether patient was appropriate for Prosthetic Assessment	Pt attends further EWA training if required post Pros and Physio Ax.	Patients rehab on EWA is less and more prosthesis focused	Yes
Pt would continue EWA training whilst prosthesis being made	Fit and delivery appointment combined with physiotherapy rehab appt	Combined appoint reduces travelling for patient. Immediate rehab input from physio	Yes
No contact with patient before their appointment	Pt called day before appt to screen for Covid symptoms. Pt also screened on day of appt	Contact has improved attendance rate	Yes
High DNA rate with ambulance using patients	Own transport preferred	Arriving on time and leaving on time	Yes
Up to 4 ambulance patients per morning. (Sometimes all together)	Limit of one ambulance patient per therapist for physio dept	Patient benefitting from supervised hour appointment. Undertaking more tailored rehab	Yes
Occasional telephone call to patient to review them	Use of Attend Anywhere virtual appointments	Reduce travelling for patients, reduce face to face time, review residuums and advice on exs etc. Improved patient experience	Yes
Patients would have to attend centre for wound reviews	Wound issues/skin breakdown occurring less frequently. ? if due to patients having longer healing times before being prescribed a prosthesis	Overall rehab time reduced as likely hood of skin issues reduced as skin integrity improved	Yes
Group work for inpatients, outpatients, and established patients occurred weekly	No group work for the foreseeable future	Lack of support for patients from patients	No
Annual patient reviews for outcome measures would be combined with prosthetist appts	Patients now reluctant to attend unless the limb is broken. Able to complete questionnaires on the telephone but not the TUAG.	Lack of data collection from annual review	No
Juzo fitting usually carried out in Consultant Clinic	Juzo measurements completed via telephone call 2/52 prior to attending Consultant clinic so that the patient is ready for Prosthetic Assessment	Ill fitting Juzos. No tape measures Delays in appointing to Prosthetic clinic	No

Outcomes

October 2020
Overall, the pace of throughput of patients is now steady and constant. Peaks and troughs of new patients needing rehabilitation have been smoothed out which has allowed for a more consistent flow of patients. The physical and mental fitness of the patients has improved and those deemed not suitable appear to be more accepting of the decision. Those patients who are focused and keen to become mobile post amputation, have kept themselves fit during their period of isolation when discharged home from hospital.

Cessation of walk-in patients, use of ambulance transport and group work does not appear to have had a detrimental effect on the numbers of patients attending the centre or on the quality of care/input received from all ALAC staff. Patients are followed up closer post discharge from hospital with regular telephone calls to screen their suitability for Consultant/MDT clinic and to address any questions/ issues they have.

The Physiotherapy Service was constantly having to contact the Prosthetists as to when they were carrying out fitting and delivery appointments as they were not communicating well with regards to joint working and appointment allocations. This has improved but still needs to be monitored.

One year post Pandemic reopening Review (August 2021)
As lockdown measures have eased, so the Swansea ALAC service has changed again. Nursing staff are still screening all patients (via telephone) prior to attending Consultant clinic to establish their medical and physical status. Clinic consists of Nursing, OT, Physiotherapy and Consultant assessments. The Prosthetists withdrew from the Consultant clinics as the suitability of the patients for immediate prosthetic assessment was becoming more questionable even though the patient is screened. Patients were being more "colourful" regarding their abilities and their abilities were not as good as they had portrayed in the screening call. Thus, Prosthetist clinic time was better utilised seeing established patients.

Basic strengthening and conditioning exercises are not being completed by patients as intently as before, thus patients attending Consultant clinic are more globally deconditioned than ever before. During the last year, the Vascular ward was dissolved due to Covid needs and thus the Vascular Physiotherapist and OT were being utilised across multiple wards. The Vascular ward is yet to be reinstated and this could be having a knock-on effect with the compliance of patients to their exercises and lack of wheelchair skills.

The ALAC Physiotherapy service is back to normal operating levels with the exceptions of group work (inpatients and outpatients). Attendance to appointments is over all very good, but those accessing ambulance transport services are again becoming the highest DNA'ers of physiotherapy appointments. The preciousness of each appointment appears to be lost on the patients once more. Early rehab and prosthetic rehab has recommenced within the physiotherapy department and the number of appointments is dependent on the patients' ability. Patients are remaining compliant with wearing facemasks during their appointments and screening of the patients is still being completed by staff.

There has been a huge increase in the number of established patients accessing physiotherapy due to not wearing their limb during the various lock downs for a number of reasons (residuum breakdown, swelling, minor mechanical issues, fearful of attending hospital site). These patients are determined to be mobile again, however their compliance to home exercise plans is not the best and they have picked up bad habits/techniques along the way which are proving difficult to unpick.

It has been an interesting 18 months, being redeployed the wards after 5 years off them was exhausting both mentally and physically for myself. I applaud my NHS colleagues who are still working in that environment. My physiotherapy colleagues have coped unbelievably well in the face of Covid. We have grown, we have strengthened our reserves and we have continued to work through it all. Quod non te occidit, fortiori te facit.

Effectiveness of a Strengthening and Conditioning Exercise Programme

Nicola Cochrane BSc (Hons) Physiotherapy

GIG CYMRU NHS WALES
Bwrdd Iechyd Prifysgol Bae Abertawe
Swansea Bay University Health Board

Introduction:

Subtitle

In December 2017 a strengthening and conditioning exercise group for lower limb amputees was established in the ALAC, Swansea. The group was established to address poor compliance with home exercise plans and post-surgical weakness. The aim of the exercise group was to reduce the period of time between hospital discharge and the initial outpatient physiotherapy appointment. The amputees that initially were not successful in progressing to the next level for a prosthesis were referred to this group, with the main objective being improvement and progression through the amputee rehabilitation pathway at a later date.

Method:

The programme consisted of 6 x 1 hour sessions. Each session included a group warm up prior to a 10 station circuit, each station lasted 2 minutes. The circuit consisted of a variety of exercises including upper limb, lower limb, core strengthening and ROM exercises. Three outcome measures where completed at the first session and reviewed again at the end of the programme; 10m self-propel, number of sit to stands (STS) in 1 minute and grip strength. Each patient's rehabilitation was then continued as appropriate on an individual basis e.g. return to MDT clinic for review or complete a primary physiotherapy and early walking aid assessment.

Data was collected in cohorts from December 2017 to March 2020. 6 cohorts were established comprising of 162 patients in total, 137 males and 25 females. However not all patients completed the programme due to a number of reasons e.g. poor health, COVID-19 or lack of engagement. Only data from patients who completed all 6 weeks with both pre and post outcome measures have been included.

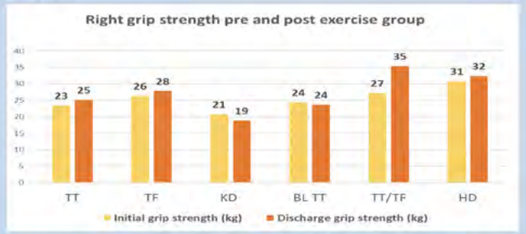
Aims:

- To evaluate pre and post outcome measures for effectiveness of exercise group.
- To improve amputee success rate as a prosthetic user.

Results:

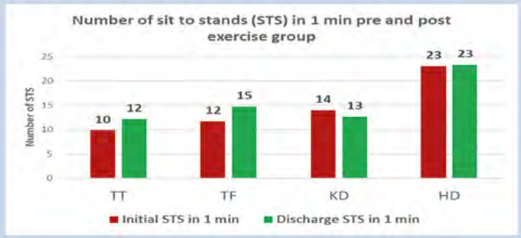
A total of 115 amputees where included within the results: 65 transtibial (TT); 36 transfemoral (TF); 3 knee disarticulation (KD); 7 bilateral transtibial (BL TT); 1 transtibial/transfemoral (TT/TF) and 3 hip disarticulation (HD). Comprising of 93 males (81%) and 22 females (19%).

Graph 1:



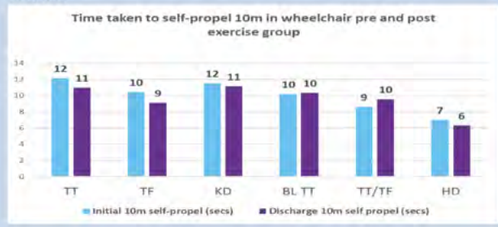
Graph 1 illustrates the general improvement of grip strength post exercise. However some cohorts show a decline, such as BL transtibial and knee disarticulation. This may be due to peripheral neuropathy, a commonly linked condition with diabetes which the majority of the patients in this study have. A vast number of the patients were right hand dominant therefore this data was chosen rather than the left hand.

Graph 2:



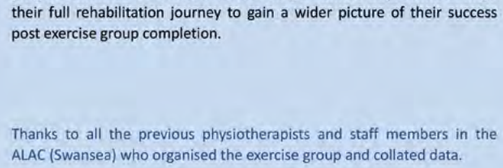
Not all cohorts where included in Graph 2 due to the inability to perform a sit to stand. Three cohorts demonstrated an improvement or maintained the initial number, except knee disarticulation. This was a small patient cohort therefore a reduction in STS post exercise group had a more significant impact on the overall average. Hip disarticulation patients had a significantly higher number of STS which could be due to their younger disposition as all were under 45 years old.

Graph 3:



In order to show an improvement within the last outcome the time needed to be reduced. All cohorts maintained or improved on this outcome apart from TT/TF. This category only had one patient, who used an electric wheelchair frequently at home.

Graph 4:



Conclusion:

Overall there has been a general improvement in each outcome measure with just under two thirds progressing to the next stage of amputee rehabilitation. Prior to participation in the exercise group these patients were inappropriate candidates for a prosthesis. The results suggest the group has been a success.

At times it was difficult to understand the reasoning behind the lack of progression in some of the outcomes due to limited data collated regarding past medical history, engagement and motivation. However this exercise group was not initiated as an audit project. It was also unclear if all participants fitted the inclusion criteria which may have caused alterations to the data.

COVID-19 created another obstacle in 2020. Outcome measures were unable to be completed, reducing the amount of data available for comparison.

Recommendations:

In the future, it may be beneficial to continue the exercise group with a few alterations to ensure easier auditing and monitoring of data. Such as giving each patient an allotted 6 weeks rather than a rolling group and collating more demographic information on each patient. Another progression of the audit could be following a number of patients through their full rehabilitation journey to gain a wider picture of their success post exercise group completion.

Thanks to all the previous physiotherapists and staff members in the ALAC (Swansea) who organised the exercise group and collated data.

WORLD PHYSIOTHERAPY NETWORK FOR PHYSIOTHERAPISTS WORKING WITH INDIVIDUALS WITH LIMB LOSS/ABSENCE

Louise Tisdale, Physiotherapist, BACPAR Vice Chair **louise.tisdale@nhs.net**

The World Physiotherapy Network for Physiotherapists Working with Individuals with Limb Loss/Absence (https://world.physio/networks/limb-loss-limb-absence) was originally established in 2013 by individual Physiotherapists from the UK, Portugal, Denmark, and Australia. BACPAR and SPARG have supported the network's development by enabling the sharing of resources with its members.

The aims of this network are to:

- encourage, promote and facilitate the interchange of ideas, research, knowledge and skills in amputee rehabilitation for education and practice:
  - share clinical guidelines
  - discuss and promoting the use of outcome measures
  - support pre-registration education
  - develop post registration education in amputee rehabilitation
  - provide support and information between members of the network

Membership of this network is open to Physiotherapists working or interested in working in amputee rehabilitation, who belong to a World Physiotherapy member organisation (in the UK this is the CSP). Membership of this network is free. We also allow non-Physiotherapists to join if they have strong involvement in the speciality.

Through membership of the network, you will be linked with colleagues using its LinkedIn group https://www.linkedin.com/groups/5140337/ where discussions are had, and information is shared.

There are currently 200 members. Fiona Davie-Smith (BACPAR Joint Research Officer) has recently replaced Helen Scott as one of the facilitators of the network.

Our last 10 new members have joined from the USA, India, Denmark, Nigeria, Belgium, Canada, Ethiopia, Germany, Poland and the International Committee of the Red Cross (ICRC). These applications were received largely in response to individuals' participation in a virtual networking session held in April as part of the virtual World Physiotherapy Congress. 40 people had been part of the session which was facilitated by Esther Brucker (OttoBock Academy) and Cornelia Barth (ICRC). Networking session participants were joining the meeting from Australia, Mexico, Japan, France, Spain, Kenya and Pakistan to list a few (map shows location of participants).

If you would like the opportunity to discuss amputee rehabilitation issues with a wider worldwide network in addition to the excellent BACPAR community then contact me. You can apply for membership by sending an email with your name, country, World Physiotherapy member organisation you belong to (e.g. the CSP), professional background and field of expertise to my email above.

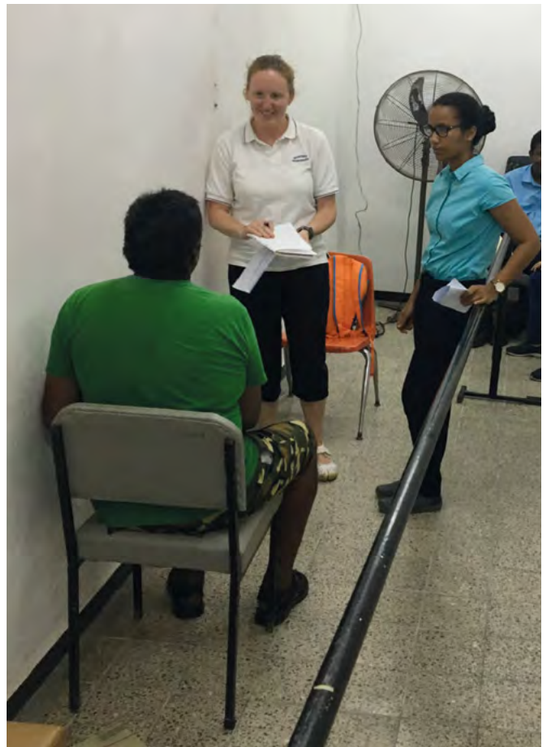
ONLINE LEARNING ON A GLOBAL SCALE

Amy Souster, Physiotherapist
Part time NHS community rehab and part time lecturer at university of Plymouth

In April 2019 I was part of a capacity building project in Guyana with Jon Batzdorff and his charity Prosthetika (www.prosthetika.org/). Jon is an expert prosthetist who alongside his charity, advises ISPO and WHO among other organisations, on supporting global provision of appropriate and sustainable prosthetics and orthotics. He travels around the world with various MDT members, supported by him and his charity, to provide training to countries who need support to meet the WHO guidelines for P&O provision. (He is a total legend).

Guyana is a country in South America, it has a heritage mixture of Asian and Caribbean influences with English as it's spoken language. They have a fairly new (5 years) BSc in Physiotherapy at the main university in Georgetown and a cohort of incredible physiotherapists working in the country. I had the pleasure of meeting and working with many of them in a previous trip in April 2019 and was planning to support them again in 2020 but obviously this was cancelled by covid.

The physio departments in Guyana have purchased 2 PPAM aids for use in the acute and rehab departments but are waiting for support and training to use them. There is an MDT trip booked for October 2021 to continue with the prosthetic training with Prosthetika so I decided to use my new lecturer role and experience to trial some online training prior to the face-to-face training planned for October. I started work as a lecturer at the University of Plymouth last October so I have learnt over the last year how to support students with online learning, to produce materials and teach online in an engaging and motivating way.



At first I pre-prepared some materials in the form of power points and videos with activities included for the physios to look into and read prior to an online teaching and Q & A session booked over zoom. I emailed this over to the heads of departments for them to share with their teams in preparation for an online zoom call. The teams had the materials for a week and we scheduled a zoom call for 1pm Guyana time (6pm UK time) with as many invites to the zoom as they needed. Due to the internet stability in Guyana I knew I couldn't use video easily and couldn't show videos while online in the zoom so this is why I sent the materials prior to the training.

On the training day I was joined by 10 physios via 3 groups calling in and a few individuals managing to connect as well. Due to the internet they were unable to use their video but I was able to interact with everyone verbally and via the chat function. Knowing the team already really helped as it meant everyone had the confidence to ask questions and interact with me as we had met during the face-to-face training and build positive relationships then.

I used the time to run through the powerpoints with spaces for any questions and gaps for us to have discussions as needed throughout the session. The teaching session lasted 3 hours and everyone engaged really well with me and with the training.

I was due to join the training trip next month on the PPAM Aid and pre-prosthetic training, but due to the UK government restrictions I am unable to go. Now I am undecided about the acceptability of trying to teach the PPAM aid via online vs them waiting until I can attend in person for training. This would be something I'd be interested in getting some feedback from BACPAR members about. Safety of online teaching for the PPAM aid vs them waiting to use it until face-to-face training is possible.

Amy welcomes members' feedback – reply to the BACPAR editors bacpar.journal@gmail.com
or contact her directly via amysouster@yahoo.co.uk
or amy.souster@plymouth.ac.uk

SIT DOWN TO EAT IN YOUR COUNTRY – AND IN AFRICA, SOMEONE WILL STAND UP AND WALK!

Olivia Giles, CEO 500 miles

Please help 500 miles' final fundraising push to get people in Malawi moving again.

500 miles is a Scottish charity which supports the development and delivery of prosthetic and orthotic services, principally in Malawi.

We need to raise £262,500. That's equal to a new leg for 1,500 people who can't afford to pay for one themselves – people like Susan, Aleick, Rashid, Charity, Felix, Chimwemwe and Rosemary. You can find out about them and how we support them in our short at: http://www.500miles.co.uk/bigdinner2/

Why?
In three years' time, we will hand over our busy Lilongwe 500 miles clinic to Malawi's Ministry of Health, just as we did with our clinic in Mzuzu on 1 July this year – and we need these funds to be able to do it.

And so our final fundraiser, the 'BIG dinner 2', is underway. You can support in the way that suits you best!

The easiest way might be for you simply to make a donation – see how on our 500 miles website on the donations page.

Or you could raise money for us in any way at all – but our last fundraiser is called the 'BIG dinner 2' because we know people enjoyed the original 'BIG dinner' in 2015, and we thought that with the loosening of Coronavirus restrictions, you might enjoy hosting a safe 'BIG dinner 2' event for family or friends, your neighbours or maybe with your colleagues at work. There is no set format, no set date for your fundraiser. All you need is some good company and great food, and to ask your guests to make a donation to 500 miles instead of bringing the usual chocolates and flowers.

It can be morning coffee, cocktails and canapes, or a formal dinner party, it is up to you. You'll find lots of recipes and cooking tips from some well-known faces on our website on the Recipes and Tips page.

Just £18 buys a shoe raise which will help a young child; £55 pays for a new foot so someone can walk. An average P&O device, like a below knee prosthesis costs £175 – hence our target being 1,500 of them!

Your contribution will not only help someone like Chisomo Tchayachaya stand up and walk today but will support many more people to walk confidently in the future. That's because when we set up the charity in 2007, our plan was to help establish a sustainable professional P&O service in Malawi. It has always been of paramount importance to me that what we set up would become part of Malawi's national health service and belong to Malawi – a hand up, not a handout. That is why, from the outset, much of our effort at 500 miles has gone into developing a quality prosthetic and orthotic service that, whilst meeting the immediate needs of people, was designed in such a way that Malawi could meet its own needs in the future.

We work directly with the Ministry of Health and the central hospitals to shape the service: all our patient-facing staff have been professionally trained, in Tanzania or Cambodia.

We have negligible overheads so every penny we receive for the 'BIG dinner 2' will go directly into our prosthetic and orthotic service in Malawi so please give whatever you can to help us reach our target.

Follow the BIG dinner 2 on Facebook (500milesafrica), Twitter (thebigdinner2) and Instagram (the_big_dinner_2)

500 miles – Registered Charity Number SC038205

500 miles

Chisomo Tchayachaya

The eldest of three children, Chisomo is 14 years old and in grade 7 at primary school. Her parents farm and sell Irish potatoes.

Chisomo was born with congenital deformities that resulted in a trans-tibial amputation on the left side and a knee disarticulation amputation on the right when she was three. She was referred to 500 miles by MAP, a Malawian NGO, in 2011 when Chisomo was four, and that is when she got her first prostheses. Since then, she has received 8 pairs of prostheses from 500 miles, including her most recent pair which you see her wearing here and in a video on our website.

Chisomo is well accustomed to wearing her prostheses and is able to walk the 1km distance to her school without crutches. She is doing well and wants to be a doctor when she grows up.

FOCUS ON MALTA

Sue Lein
Bacpar.treasurer@gmail.com

We are thrilled to have BACPAR members literally all over the world! At the last count this included Australia, Canada, Malta, New Zealand, Republic of Ireland, Serbia, Norway and UAE. In this edition we focus on our two members on the small island of Malta working at the physiotherapy out-patients department at St. Luke's Hospital

Michaela Cantania has been there for three years. She mainly deals with vascular patients and works in a team of 7 physiotherapists all in amputee rehabilitation. All the amputees seen here are out-patients after coming from the Mater Dei Hospital, the acute hospital where all the vascular work is centred. Some also go on to the in-patient Rehabilitation Hospital if they cannot go home for some reason.

She says the biggest challenges in her role with amputees are dealing with multiple comorbidities and delayed wound healing.

During COVID they have witnessed an increase in numbers of amputees and many becoming bilateral amputees: they think this was a combination of people being scared to come to hospital and care not being able to be given.

Michaela joined BACPAR to learn from other people's experiences and share knowledge through research. She had a study published in the BACPAR Journal in 2019 and is currently working on small projects like using the PPAM Aid with delayed wound healing and annual database research of their albeit small caseload.

Likewise, **Edwina Zarb** works in the same unit with amputees seeing older adult patients following an amputation for vascular and diabetic issues and less commonly individuals who have an amputation following trauma or who have planned amputations for congenital deformities. She also liaises with physiotherapists who follow up amputees who have been discharged in nursing or community elderly homes and at times these patients also attend at the unit. Apart from major amputees she also sees patients who had lower limb vascular surgery and toe amputation.

Edwina also cites the biggest challenges in her role with amputees are mostly the multiple co-morbidities of the patients coupled with the normal effects of ageing, presenting the team with the arduous task of coordinating appropriate care, proper prosthetic rehabilitation and in the retention and maximisation of the patients' quality of life.

During COVID-19 they initially stopped seeing low priority cases on a regular basis shifting their provision on an online basis, which was a first in the history of the unit. In addition, the pandemic brought about the development of new policies and protocols which allowed resumption of normal activities and services following infection control guidelines. Something new that they can now continue doing is to offer video call consultations and treatments for certain individuals that would benefit from it. The technology and services are now in place, and they are finding it a positive tool to have available when it is needed.

Edwina explains why she joined BACPAR: 'I believe in the importance of being part of an association made up of professionals who share an interest in the field and are passionate in the service that we provide to our patients. Being part of BACPAR allows me to stay in tune with guidelines and new research that is being done on an international level. It also gives me the possibility of attending online lectures as well as conferences. In addition, I hope to be an active member of this community by also sharing local knowledge and research, an area which I am passionate about and that led me to a Masters research with the study titled *'The influence of the progressive power squat on the risk of falls in community dwelling older adult trans-tibial amputees'* which I eventually also plan to present for publication'.

Amputee
(above the knee)

How often do we stop to think
how life would be
if we were not able to walk, for miles,
across warm sand into waves;
kick up leaves, crunch through snow,
run until breathless.

Can we imagine
how it must feel to be defined
by loss and lack of limb;
the unthinkable changes
to life, self image, identity.
One day as normal walking the dog,
standing with ease,
bending, stretching, being…
the next: a few hours of surgery
then it's gone,
simply *not* there.

She used to dance,
moved with fluidity, effortlessly, sensually,
enjoyed her pretty feet,
her symmetry,
tip-toed, clip-clopped,
pointed toes.
She walked through woods, rambled.
scrambled over styles,
trudged, plodded,
muddied her boots.

Amputation strips away, inhibits,
much of the unique physical expression
of personality.
wheelchair, prosthesis – metal chair, metal leg –
challenge, frustrate,
confine.

The gruesome act:
hacking away of limb from limb,
above (and below) knee, the last resort,
final option for pain, trauma, disease,
sarcoma.

People often stare, remark,
point.
Faces contort, frown.
Rudeness replaces civility –
nudges, whispers, head-turns,
eyes burning into back,
suddenly part of daily life.

She knows how it feels
to be ignored, become invisible –
eyes averted
to a distant, more acceptable, vista.
They: can't take it…don't know…don't care
can't think what to say.
She wants to shout: "just talk to me,
for goodness sake, it's not catching!
then you will see –
I've still got a brain, thoughts, feelings, opinions
they didn't just disappear along with my leg."

Simply ask –
most are happy to answer,
tell their story,
delighted to connect, be acknowledged,
seen.
Smile, look into eyes, connect;
see beyond the metal…

imagine, for just one moment,
how it must feel
to suddenly be changed
forever.

Sally Richard's Biography

I was born and grew up in South Shropshire and currently live on the South West fringe of Shrewsbury. In 2015 I was diagnosed with soft tissue Sarcoma on my lower leg resulting in 'limb sparing surgery' at the Christie. Four months post-op. I returned to my work as a Complementary therapist (FdSc hons.), unfortunately Sarcoma returned in 2017 resulting in above knee amputation at The Robert Jones and Agnes Hunt, Gobowen. Physiotherapy and gait training with the team at Shrewsbury Limb Clinic is ongoing (much gratitude to Kim Ryder, clinical lead Physio. for her patience, expertise, and support, and to Jose my Prosthetist).

My poetry covers diverse subjects including the natural world, humanitarian issues, and mental health and can be found in poetry anthologies, literary Journals, magazines etc. My collections include*: Stained Glass* (Survivors' Poetry London), *Emperor Dragonfly* (Caparison E-books and *Through The Silent Grove*. I have read my poetry in various venues e.g. Wenlock Poetry Festival, Montford W.I., Shrewsbury Library, and the Poetry Cafe Covent Garden. Commissions include Shrewsbury Library for the *Darwin Centenary*.

For more info: mail@sallyrichards.co.uk. For examples of my work, readings, publications etc. please go to: www.sallyrchards.co.uk (due to be updated next year).

TOO CLOSE TO HOME!

Anne Harrill,
Physiotherapist, Amputee Specialist at the Bristol Centre for Enablement

I have been a vascular physio for over 25 years and have recently had my thoughts and coping mechanisms uprooted due to supporting my previously very fit and active, non-smoking, non-diabetic 89-year-old mother through critical limb threatening ischaemia. I was surprised just how quickly it took its effect. She was aware that she had intermittent claudication, declined the local class as I took it although embraced all the advice and walked daily including trying really hard to push through the pain.

In March of this year the pain started to increase, she was sleeping in her chair and often would be seen just holding her legs. She was barely able to feel her feet, feeling like blocks of ice yet were not that cold to the touch. She had a vascular review including studies showing occlusion in nearly all vessels in left and right lower limbs. She was offered reconstructive surgery but declined as the surgeon and she were both agreed that ultimately it would be delaying the inevitable.

It has been so hard to be on the other side of the fence. It has raised many issues in my head, the most important one of how do we really ensure that patients/people have the knowledge and understanding to make an informed decision. The hours I spent with my mother discussing her options is something that is not possible in very busy hospitals. How can we and the surgical team explain the considerable challenges that both vascular intervention and amputation create for an elderly person to enable them to make that informed decision?

Over the years with many patients, I have watched as that blackness and gangrene marches steadily up the leg and the associated smell… but to watch it on someone you love and who has been an integral part of one's life for over 50 years has been so tough. The pain she felt on being moved was so clear, yet it was hard to gain the appropriate pain relief and she was adamant that amputation was not an option. I was very fortunate in that all health professionals listened and acknowledged my understanding of the condition, and she was able to die at home with her family.

I hope no one reading this feels it is self-indulgent. I just wish to reach out to colleagues for whom their work enters their home life. It has taken me nearly 3 months to feel able to manage work and fortunately I have been fully supported to enable me to return soon.

MISSION GAIT

TRAINING - EDUCATION - RESEARCH

MISSION GAIT

FOUNDATION

THE ROAD TO RECOVERY

Since the beginning of the 2020 COVID pandemic, Mission Gait, like so many others, found reach and engagement with our online resources in ways we never expected.

- Clinicians used our video for additional instruction for their online therapy.
- Patients found the information helpful when they could not get to the care they needed due to isolation.
- University Instructors found themselves in need of online educational resources for which we had already developed for them.

Who We Are
Our foundation, Mission Gait, wants to empower the rehabilitation community everywhere through the education, training, and research needed to provide all patients with complex gait disabilities the highest level of care. Created in 2016 by David Lawrence. a physical therapist and gait specialist in Richmond Virginia, USA, respected by his peers, patients and around the world for over 20 years.

Why Our Work is Needed
Lawrence and his team have determined a substantial shortage of educational materials and opportunities dealing with the complexities of human gait. In particular, the patho-mechanics associated with the use of orthotic devices or prosthetics. There is also a great deal of research and related patient care tools that never make it to the attention of the clinic therapist.

What We Can Do for You
We want to be the "resource hub" for rehabilitation professionals. We provide free online case studies, educational videos, and toolkits for clinicians to hone their skills (see picture 1). These resources are available in two locations, our YouTube channel and our website.
YouTube:
https://www.youtube.com/c/MissionGait/playlists

Picture 1

Our goal is to break down research efforts to make them more palatable to the clinician, including producing and providing "Playlist" videos to promote everyday use for clinicians, patients, and caregivers. We want to be your source for gait-related instructional videos, case studies, patient education videos, and more and are currently hosting 289 videos! Help us reach 10,000 viewers by clicking the subscribe button and hitting the bell to get notifications about our latest content.
Website: https://www.missiongait.org/

The Mission Gait website houses our online Resource Library, including a vast array of educational materials for all to use.

- Outcome Measure Toolkits ready to go in services, outcome tools, research summaries.
- An online Instructor's Library, fostering partnerships with universities to bolster educational materials and training tools to supplement curriculums.
- For lecturers and faculty members for teaching gait rehabilitation:


Picture 2

This is a collection of lecture and lab materials that enable clinicians, lecturers, and faculty members to teach gait rehabilitation to the next generation of rehabilitation professionals.

- Educational Materials that emphasize the importance of interdisciplinary exchange and coordination in rehabilitation.
- The 3-legged stool approach of medicine + therapy + prosthetics and orthotics.

Links:
Resource Library:
https://www.missiongait.org/resource-library

Instructor Library:
https://www.missiongait.org/instructor-library-form
Contact us to receive FREE access to the Library!

User Feedback

How our resources are being used has surprised even us, especially during and after the COVID Pandemic. We would instead have you hear it from the end-user:

Patient:
"As a newer hip disarticulation amputee, any info that I can find to help get me back on my feet is beneficial since additional in-person PT with my new prosthetic isn't currently an option. Thank you for producing good quality, informative content!"

"Thank you so much. During quarantine, your courses have provided much-needed help. Instead of trying to reach someone, which many times takes days to receive a callback, I refer to your videos, which my physical therapist strongly agrees with. Once again. Thank you."

Professional:
"It is such a wonderful video! Even though I've been a PT for 24 years, this has taught me so much better things to help my clients. God bless you for this!!"

"Amazing! So informative! Thank you!"

"Thank you so much for your valuable information and effort."

And That's Not All

Training

We feel it is vital to provide educational materials and truly solidify the benefit of these materials through training. Hands-on training is our preference, but we create virtual and hybrid options to address the larger global need (see picture 2).

Thus, we are taking the following actions:

- Creating hands-on and virtual training options throughout our 3-level education program.
- Providing cross-training opportunities across the rehabilitation spectrum, including medicine, therapy, and prosthetics, and orthotics.
- Establishing community re-integration/education events such as Discover Your Possible & artistic interpretation initiatives. These focus on education for the patients and the public to reduce the gap between rehab and reality. Discover Your Possible: https://www.youtube.com/watch?v=-PXndZE2D2g

KIDS JUST WANNA HAVE FUN, AND ALSO TO BE PIRATES

Miranda Asher
Private prosthetic physiotherapist, and life science researcher, various UK locations

Photographs courtesy of Shaun Richardson and Limb Power

It's Sunday morning and I'm watching a pirate on a mission to sink all the surrounding vessels, a systematic mission that started with his own crew mate. He boards the craft of a younger sailor and uses all his cunning to take charge of the steering, manoeuvring to the left, course set to hit the oncoming combatant. The pirate and new crew mate stay afloat while the unlucky opponent's vessel is upturned into the murky waters, and they are plunged into the depths. The pirate lifts his oar aloft in victory as a hand creeps out of the deep and tilts his ship to the sea, he is not armed to fight against gravity and "SPLASH", meets his fate. All I can hear is the giggling.

This is paddle boarding and the sailors are all children and families with limb difference (kitted out in the appropriate safety gear), one of the events I support through volunteering and collaborative work. After a lot of lockdown time and more than a year of not meeting up it is finally a chance for these families to get together again and for everyone to have some fun. Run by Limb Power, with support and sponsorship of different parts of the weekend from the Limbless association, Koalaa, and Starworks, the 'I Can' camp lives up to its name by offering opportunities to have a go at a few adventure activities without the focus being on aspects of disability. It's a little bit of magic, watching older children supporting the younger ones and freely talking about their journey to get to where they are now and all the things they can do. It's also an opportunity for parents to share and advise each other through their experiences and for siblings to let off some steam and, hopefully, relax.

Held in the Welsh mountains the camp is hosted by an activity centre on a hillside, with higgledy-piggledy doors and stairs here and there, an obstacle course and maze in it's own right. The outside is views over the Welsh countryside, brambles and bushes and wooden area beyond. The families all arrive on Friday evening and the children don't take long to sort themselves into age groups, the teenagers all scrambling for the WIFI code, the younger children playing excited games around the garden, and the adults sipping hot drinks. I arrived a little after sunset and settled in for catch ups. Out of the bushes bounds a child, one batman socket and blade catching the flood lights as they race across the garden, seconds later another blade runner appears around the corner, in pursuit. They are already excited, and the activities haven't even started yet.

Saturday starts with a short bout of warm up exercises, and we are off to the canal to get everyone into canoes Having a range of ages, amputations, and abilities is not an issue for the fantastic instructors, the children team up and balance gently into the boats, some lowered in by parents, some holding the shoulders of the instructors and some just bounding in, as we head down the river. For the outward journey I walk along the narrow canal edge, a beady eye on the three rambunctious teenage lads who are in the first canoe. Predictably it is not long before we have three damp and muddy boys stood on the banks while their boat is emptied of water and righted. While there is a distinctly grumpy atmosphere for the next few strokes, there is an increased willingness to listen to the expert's rowing and steering instructions and they are off again, at speed with grins and shouts. At lunch time there is one very muddy residual limb that needs a good clean and a dry sock, but all the families band together to sort out the soggy trio and after lunch they are back in canoes ready for round two. For the return mission I am asked to man the front of a canoe so our four-year-old passenger can sit in the middle, pointing out the ducks, fish, sheep, and dogs

on the way so we don't miss a thing while his parents take snaps from the river path. The journey back on the bus is just like being back at school, excited children chatting proudly about their conquests. Boasting about how wet they got, or how dry they stayed, and vying to prove they were fastest. Back at the centre the kids have decided it's time to play the biggest game of hide and seek, I can see a few prosthetic limbs dangling from trees as they disappear up to hide. Giggling can be heard everywhere, and the parents chat. It's an opportunity to ask each other questions, what's happening with school? have you found a place to go swimming? have you found a suitable bike yet?

For the charity CEO, Kiera Roche, "It is vital that the activity camps are part of a pathway and not just a weekend we need to think about the steps, where do families go after camp to support their rehabilitation journey?". With this in mind there are researcher invitees, with a session for the children and one for the parents to find out what life is like and what's missing, what can be done to help them out. It's a safe space to discuss all the emotional aspects, forgotten or overlooked obstacles and all the moments of fun and joy experienced by these families.

As the evening draws in, bags of marshmallows start appearing and a snow leopard with a prosthetic leg gallop through the doorway followed by a unicorn (who doesn't love a onesie). We take our torches, and the most rugged wheelchair I have ever seen, into the woods where a fire is burning ready for a few rounds of singing "ging-gang-goolie" and "baby-shark" while the little ones learn the fine art of marshmallow toasting, cooling, and stuffing into the mouth.

Sunday is all about the paddle boarding, high wires and zipline, (image 3 here) and one very steep hill. By now they are all friends and egging on the adults to push their boundaries and try the assault courses and do a trust fall for the zip wire. A few nervous faces get strapped in climbing harnesses and I escort a brother and sister up the stairway, pretending to be completely calm about the height. Watching his year 2 sister going through the zipwire instructions, the year 5 boy asks me in a quiet voice "What if I forget to drop the rope at the end?", I reassure him and the super enthusiastic instructor flashes him a smile as she gives his even littler sister the options "You can step off, you can run off, you can jump off or, you can go off backwards with your hands across your chest". The girl jumps and her brother's eyes widen as she whizzes off down the zip wire. Suddenly he is keen to be next and, once strapped in and instructed, jumps off shouting "KABOING!". He emerges, pulling the rope back, with a grin as wide as his face. And that is what it is all about, the smiles, the joy, and the fun. Memories have been made, worries shared, support given, and contacts created. As Carly Bauert, the event organiser says, "By the end [of camp] we are all one family, looking after each other's children." She loves her job, and you can see why! For me it is a reminder why working with, or for, these children and families, in the various way that we as BACPAR members do, is so important to help let kids, just be kids!

LIMBPOWER – AN OVERVIEW

Kiera Roche, CEO

LimbPower was launched in 2009 to support children, young people and adults with an amputation and individuals with limb difference as well as their families to bridge the gap between hospital rehabilitation and community and school engagement to rebuild lives and improve physical, social and mental well-being.

The charity has developed to support healthcare professions and other practitioners through resources including the Amputee Module of the Moving Medicine https://movingmedicine.ac.uk/consultation-guides/condition/adult/amputee/
and Making the Most of Your Limb Centre Visit Guides https://limbpower.com/resources/publications/making-most-your-limb-centre-visit-lower-limb

All of LimbPower's resources are on our website www.limbpower.com

LimbPower also organise workshops and events to support amputees and individuals with limb difference. We have a pathway back into activity starting with home exercise videos and live online classes, followed by our Physical Activity Advisers and Nordic Walking Instructors who offer support to both patients and healthcare professional via the limb centre. We plan to expand this programme to more limb centres. The next stage is the fundamental skills workshops, advanced rehab programme and learn to run sessions, followed by the LimbPower Games and Junior LimbPower Games and single sport activities. LimbPower then sign-post participants on to their chosen activity or sport, offering ongoing support when needed.

LimbPower have a Friend programme for professionals and beneficiaries for £25 a year which includes access to all of our online resources, including some exclusive materials
https://limbpower.com/what-can-i-do/friendship

The more friends we have the more informed we can keep people and the more help we can offer.

You can contact our team who can support you or your patients in accessing this information or answer any questions you may have info@limbpower.com

SUE'S PUZZLE CORNER

1. Here is this month's Cryptic Crossword Clue:
Be responsible for amputee's revolutionary climbing trousers (7)

2. And a Word Challenge:
What is the longest word you can make with the letters of 'AMPUTATION'?

3. And a Quiz Question:
Who is Weatherfield's dad to amputee young amputee Jack?

See opposite for the answers

Possible (slight) change of BACPAR name?

Discussions amongst the BACPAR exec suggest that 'amputee' within our name doesn't fully describe or include all those we seek to support. 'Limb loss' or 'limb absence' might be better, but because the BACPAR acronym is so well know we are reluctant to change it.

We propose 'amputee' is changed to 'amputation' to reflect greater inclusivity.

This will be raised at the AGM in December's conference but want you to consider this beforehand, and to have your say if unable to attend.

Please feel free to email your thoughts to me at bacpar.chair@gmail.com

Julia Earle

CIRCULATION FOUNDATION
The Vascular Charity

Have you heard of 'The Circulation Foundation'?

www.circulationfoundation.org.uk

Established in 1992 by vascular surgeons committed to eradicating vascular disease, it is the only UK Vascular charity dedicated to vascular health.

Run entirely by volunteers and relying on donations to fund vital research and awareness programmes aimed at preventing vascular disease, advancing and discovering new treatments and improving patient care, their website also includes lots of patient information.

VASCULAR SOCIETY
The Vascular Society for Great Britain and Ireland

IT'S COMING… ARE YOU?

If you haven't booked your place already there's still time to join us at the BACPAR conference at the Vascular Societies' Annual Scientific Meeting, Wednesday 1st to Friday 3rd December 2021 in Manchester.

BACPAR's programme is on Wednesday and Thursday and face-to-face once again – a great opportunity to network, meet old and new friends.

The conference will adhere to the latest COVID advice.

Tickets and the full programme can be found at this address:
https://www.vascularsociety.org.ukb/vsasm_2021.aspx

See overleaf for BACPAR's draft programme.

BACPAR

BACPAR BURSARIES AWARED IN SEPTEMBER 2021 are:

RESEARCH:
Joanne Hebenton on behalf of SPARG £1150
Chantel Ostler £1580
Fiona Gillow Research (up to) £280.00

POST-GRADUATE:
Linsay Clark £1k for MSc Studies at Southampton
Hayley Freeman £1k for MSc Studies at Southampton

TOKYO PARALYMPICS

Many congratulations to ParalympicsGB from BACPAR!

127 medals, 2nd in the table behind China!

Dear BACPAR journal readers,

I am interested to hear if anyone else has had patients who have required multi site distal amputations?

At a large teaching hospital in London we had 3 patients all post Covid who required distal amputations on 3 or 4 limbs. (partial digits, fingers and trans metatarsal).

We have continued to follow them up as they don't meet the criteria of any other services and our input is successfully improving their functional independence.

Please contact me on amy.jones2@gstt.nhs.uk if you have had any similar patients as we have a cohort of patients that we can follow up and present on.

Amy Jones
Clinical Lead and head of community amputee services,
Guys and St Thomas' Trust.

Chantel Ostler and Fiona Davie-Smith have formed an Amputation Rehabilitation Research Network hoping to bring together clinicians and academics in the field to develop and grow research, as well as provide support and mentoring to those interested in getting involved in research. Keep an eye on the next BACPAR journal for more details or contact Chantel on chantel.ostler2@porthosp.nhs.uk.

SUE'S PUZZLE CORNER ANSWERS

1. Cryptic Clue:
OVERSEE (anagram from 'amputee's revolutionary…')

2. Word Challenge:
The longest are 8 letter words: **ANTIATOM, MUTATION, OUTPAINT & PUTAMINA**

3. Quiz Questions: **KEVIN WEBSTER**

DRAFT BACPAR PROGRAMME 2021

Wednesday 1st Dec 2021		Thursday 2nd Dec 2021	
10-10.30	Welcome	09.25-09.30	Welcome
11-11.30	Stump pain: differential diagnosis and surgical treatment options – *Keith Hussey, Vascular Consultant Lead Surgeon*	09.30-10.00	The power of narratives to translate knowledge in amputee rehabilitation – *Fiona Leggat*
11.30-12.00	Neurophysiology of amputee pain and pharmacology treatment – *Louise Tisdale, Clinical Specialist Physiotherapist*	10.00-10.30	Pain service and non-pharmacological approaches – *Lars Williams, Consultant Anaesthetist*
13.00-13.30	Prosthetic socket technology to manage residuum pain – *Laura Brady Senior Prosthetist*	11.00-11.30	BACPAR Prosthetic guideline audit update and implementation in practice – *Rachel Humpherson, Clinical Specialist Physiotherapist*
13.30-13.55	Phantom Motor Execution – *Professor Max Ortiz-Catalan (pre-recorded)*	11.30-12.00	Amputee Rehabilitation Research Updates – *Hayley Crane*
13.55-14.30	Practical demonstration of the Neuromotus – *Maria Muñoz*	12.00-12.30	Service experiences of Using Ossur's Direct Socket TF – *Rachel Malcolm, Senior Prosthetist*
14.30-15.00	Patient experience of pain – *Cieran McKiernan, Consultant in Emergency Medicine*	12.30-13.00	Graded Motor Imagery current practice in amputee Rehabilitation – *Kate Lancaster, Specialist Physiotherapist*
15.30-15.45	Lessons from COVID BACPAR Members' feedback – *Carolyn Wilson, Clinical Specialist Physiotherapist*	14.00-14.30	Amputation in Complex Regional Pain Syndrome – outcomes – *Mr Paul Renwick, Consultant Vascular Surgeon*
15.45-16.00	BO1 (217) – Rehabilitation services for non-ambulatory vascular amputees and Covid-19: a scoping survey of UK practice (part 2) – *Amirah Essop-Adam*	14.30-15.00	SPARG PPAM aid guidelines – *Julia Lee and Fiona Davie-Smith*
16.00-16.15	BO2 (37) – Can a modified BLARt be used to predict discharge destination and hospital length of stay for patients who have undergone a major amputation? – *Elizabeth Bouch*	15.00-16.00	How can I help you? – *Lauren Newcombe, Specialist Physiotherapist*
16.15-16.30	BO3 (131) – Can a physiotherapist-led walking behaviour change programme be delivered as intended? Findings from a nested fidelity evaluation within the MOSAIC randomised controlled trial – *Lindsay Bearne*	16.00-16.15	Limbless Association Volunteer – Visitors service – *Danielle Duggan, Development Officer*
16.30-16.45	BO4 (209) – Physical Performance Based Outcome Measures (PerBOMs) in vascular amputees: a scoping survey of UK practice (part 1) – *Amirah Essop Adam*	16.15-16.30	reVAMP Fitness & Nutritional Programme – *Rebecca Logon, reVAMP Manager*
17.00-18.00	BACPAR AGM	16.30-17.00	Introduction to the New BACPAR website – *Hayley Crane*

SHARING RECOVERY STORIES OF LOWER LIMB AMPUTATION: A CLINICAL AND ACADEMIC RESEARCH COLLABORATION

Dr Fiona Leggat, Researcher in Health Psychology, St Mary's University, Twickenham, London
For more information please contact Professor Ross Wadey ross.wadey@stmarys.ac.uk

In 2015, a collaborative research venture between St Mary's University and the Amputee Rehabilitation team at Queen Mary's Hospital began. From the outset, this research was driven by senior therapists who were working in amputee rehabilitation. They were observing discharged patients, who were returning to the centre for prosthetic-based queries, expressing several concerns about their expectations of rehabilitation and recovery (e.g., I didn't expect it to be like this? Why am I not recovering as fast as the others? What's wrong with me?). Furthermore, the senior therapists reported that junior colleagues entering the rehabilitation setting needed more support and resources to support their service delivery and to help support and nurture patients' recovery. In summary, the purpose of this programme of research was to give voice to patients' experiences of rehabilitation and recovery, as well as to co-create resources to help support patients' experiences and support staff's professional development.

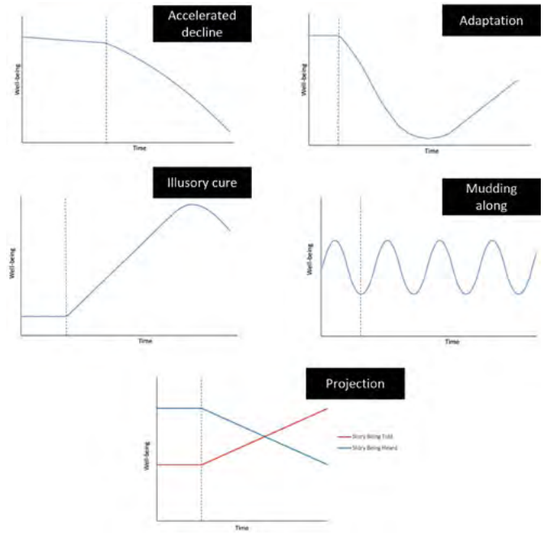


Figure 1: Five narratives of recovery following major lower limb amputation (Sanders et al. 2020).

Our first agenda was to better understand patients' experiences and to give them a voice. After following 30 patients throughout their recovery for 2 years, Dr Phoebe Sanders and I were excited to present the first study of this programme of research at the BACPAR conference in 2019. The presentation was titled 'Recovery trajectories after major limb loss and their impact on rehabilitation practice'. Five narratives of recovery were identified and storied: *accelerated decline*, *adaptation*, *illusory cure*, *muddling along* and *projection* (please see Figure 1 for narrative plot lines and Sanders et al., 2020 for additional detail).These narratives provided us with a rigorous understanding of patients' experiences and how best to manage their expectations and support their rehabilitation and recovery. Building upon this study, we then sought use these findings to co-construct recourses for patients and staff.

Since the 2019 BACPAR conference, the collaborative project has embarked upon an impactful journey. I have continued what Phoebe started, and have worked with, not on, rehabilitation therapists and individuals with lower limb amputation to co-design and implement resources in clinical practice which translate the narrative research. I have also worked with these groups to evaluate participants experiences with, and use and outcomes of narrative resources in clinical practice. The purpose of this article is to provide an update of the project before the final findings are presented at the Vascular Societies conference in December.

To translate the narrative research into practice, I engaged in a process known as integrated knowledge translation. This process seeks to build relationships and work with end-users, such as therapists and patients, to do research and translate knowledge that meets their needs, appreciates their contexts and ultimately, answers the questions most sought after in practice. To start the process, I first immersed myself in the amputation rehabilitation culture, observing patients and engaging with therapy staff. Through immersion, I wanted to understand the activities and events of everyday practice, as well individuals' knowledge and perspectives of patient recovery stories. Upon developing an initial understanding of the culture, and after hearing the perspectives of the therapists, together, established prosthetic users from the centre, therapists and I began to engage in collaboration activities. Collaboration activities, normally group discussion or workshop sessions,

were used to co-design narrative resources and research processes to evaluate the resources in practice. Placing their valued lived expertise above my own limited knowledge, established prosthetic users and therapists guided the co-design process and contributed to important decision-making regarding the format and content of the resources. Owing to different preferences and arising needs different resources depicting the narratives were co-designed for two different demographics: new rotational and student therapists, and individuals with a lower limb amputation in rehabilitation.

Resources co-designed for new rotational and student therapists were initially presented for external feedback at the BACPAR conference in 2019. These consisted of five infographics outlining the narratives and four corresponding guidance sheets for how therapists might work with patients whose story aligns with each of the narrative plot lines. Since the conference, and through latter collaboration activities with collaborating rehabilitation therapists, these resources have been developed into a professional development support programme and implemented into practice. This implementation was done through co-designing a delivery plan with therapists that made the resources accessible and their use encouraged. Rotational and student therapists found the narrative resources enhanced their awareness of patient's journeys following amputation, and thus, were valuable during their professional practice when working with patients.

In additional to the narrative resource package for rehabilitation therapists, narrative resources have also been co-designed for individuals with lower limb amputation undergoing physical rehabilitation. In similarity to the process previously described, established prosthetic users, senior rehabilitation therapists and I worked together for over a year to co-design, and plan for the implementation of, five narrative videos and two large scale illustrations. The illustrations hang in the rehabilitation gym. One depicts a journey of rehabilitation from initial assessment to life after discharge, while the other illustrates the five narrative plot lines. The five narrative videos feature five different main characters (Asha, Malik, Kris, Matilda, and Frank) each storying one of the narrative plot lines (see Figure 2). The experiences of the five characters were drawn from those of the original participants in Phoebe's research, as well as the experiences of the prosthetic user co-designers. While the five stories are individual, the characters all feature in one another's stories, just as if they'd all attended rehabilitation at the same time. Each narrative video is approximately five minutes in length and possesses audio and animated visual content. The videos were designed to be used within the rehabilitation centre, for patients nearing the end of their prosthetic rehabilitation. It was hoped that these illustrations and videos would provide more narrative resources for individuals in amputee rehabilitation to draw from to both make sense of their experiences and to prepare for their lives ahead. Patients' experiences with using and outcomes from using the narrative resource package will be presented and discussed at the Vascular Societies conference in December.

Figure 2: Screen captures of the five narrative animation videos featuring Matilda (*accelerated decline*), Frank (*adaptation*), Malik (*illusory cure*), Asha (*muddling along*), Kris (*projection*) and all the characters together (from top left to bottom right).

I'd like to finish this piece by providing some of reflections from this collaborative research venture. Firstly, I firmly believe that working with those in amputee rehabilitation (e.g., prosthetic users and therapists) is the best way to do research and enhance clinical practice. The team I worked with provided vital practice-based expertise throughout the project which enhance both the quality of the resources produced, but also the quality of the research used to evaluate the resource packages in practice. Therapists provided invaluable expertise on what would likely be accessible and useful in practice, while established prosthetic users provided personal accounts of everyday life living with amputation which add incredible value, depth, and emotion to the video content. Together, their creativity and passion for the project, given its practical importance, made my role as a researcher incredibly enjoyable. However, to conduct and translate research to practice settings collaboratively with end-users can require large time and financial commitments. The longevity of the process can extend that of 'traditional' top-down research, and the production of resources can require financial support. However, in this very specialised discipline of the amputation rehabilitation which lacks research attention, I would encourage therapists to engage with and support this type of research. By building bridges with academic colleagues, meaningful and impactful research can be undertaken which seeks to explore and investigate those questions that want answering most.

Phoebe, the research team (Professor Ross Wadey, Dr Melissa Day, and Dr Stacy Winter), and I are now excited to share these videos with other limb centres to support their professional practice and their patients. If you would like to hear more about these resources, please do get in contact. We look forward to hearing from you and seeing you at the BACPAR conference in December.

References

Sanders, P., Wadey, R., Day, M., & Winter, S. (2020). Narratives of recovery over the first year after major lower limb loss. Qualitative Health Research, 30(13), 2049-2063. doi.org/10.1177/1049732320925794.

ISPO UK NEWS 2020-21-22

John Sullivan, Prosthetist and ISPO UK Chair

ISPO MS UK has been particularly active over the past eighteen months. The pandemic has forced us, as with most organisations, to dramatically change the way we communicate and learn using predominantly digital platforms. To some extent this has been one of the very few benefits of the pandemic. There is now a degree of digital fatigue and many of us are looking forward to attending face to face events with the associated opportunities to socialise as well as learn.

ISPO UK are actively working to attract new members with a view to ensuring the organisation is relevant and attractive, particularly to younger professionals working in and around this area of rehabilitation. This is underpinned by a membership strategy document and an attempt to identify the expectations and learning needs of the membership. Feedback from members formed a key part of this approach. The past year or so has seen a significant increase in the frequency and range of activities on offer from ISPO UK. We have an active committee with a good balance across professional disciplines, gender and age. The outcome had been a doubling of the membership. The trick of course is to maintain momentum, membership and energy into the longer term.

2021 saw the introduction of our first Special Interest Group on Upper Limb Difference and Rehabilitation. This area of prosthetics and rehabilitation has become de-specialised over the years with an inverse correlation between development and technology and front end clinical delivery. Are we meeting the needs of patients with upper limb difference? The group has now had three meetings with a great response from all members of the MDT. We plan to introduce a second Special Interest Group in 2022 but will first review our learnings from the experience gained thus far.

We are working hard to utilise social media more effectively and members have taken this on to good effect. The ISPO UK Annual Scientific Meeting is scheduled for 14th and 15th October. Again this is an online event but an interesting and varied programme is on offer. This is followed by the World Congress running 1st to 4th November with the theme "Digital Transformation in an Evolving World."

ISPO UK had planned to host a face to face collaborative Trent International Symposium (TIPs) with the Netherlands Society. This has now moved online and the event is scheduled for March 2022. TIPs is one of just two international conferences focusing on the area of upper limb difference, research and technology.

BACPAR is of course a society with an affiliate membership of ISPO UK. BACPAR members can access conferences and courses at the same discounted rates as full ISPO members.

We organised a series of webinars over the past twelve months covering topics such as Rebuilding Services in Response to Covid 19, Multi Articulating Prosthetic Hands, Pathological Gait and Stroke and Outcome Measurement in Prosthetic Rehabilitation. All of these events were incredibly well supported and received.

Chantel Ostler, Physiotherapist, chaired the Outcome Measurement webinar, a collaborative event with BACPAR. The programme included a range of international speakers including Bengt Soderberg who presented on SwedeAmp, a national amputation and prosthetics registry. The need for co-ordinated high quality national data collection is now clear but is a very hard nut to crack. Stakeholders require visibility of outcome measurements to inform a range of aspects including future planning, commissioning and last but not least, to inform best practice in the rehabilitation clinical setting. This really was an excellent high quality webinar so well done Chantel for putting the event together and chairing so well.

PARALYMPICS

THE TOKYO PARALYMPICS 2021. BACPAR'S 'INTERVIEW' (Q & A) WITH LORRAINE LAMBERT, PARALYMPIAN. BEFORE THE GAMES

How did you acquire your limb loss?

I had a rock-climbing accident in 1997, which resulted in sustaining a complex talus fracture. I was unable to weight bear on my left leg and developed a rare condition called complex regional pain syndrome. It's been called many things since 97.

I had 16 operations during the years 97–2010, during this time I was unable to walk or put my foot to the floor. I was in constant pain and in agony to the point that if rain droplets dropped on my leg I would scream in pain. I was on so many drugs and potions I could barely think straight or felt like myself and to be honest it was awful. In 2005 I asked for my left leg to be taken off to stop the pain I had had enough but I was told they don't take limbs off for pain, I was then told I had to speak to a counsellor to see if this would help which I did. After about 4 years and different tablets for pain and counselling I was introduced to another surgeon and this changed my life. In December 2009 I spoke to Commander Hand who took my leg off electively in January 2010.

How many years ago then?

It has been 11 years since my surgery now or as us amps like to call it 'ampiversary'.

Were you always interested in sport?

Prior to my accident I was a sports instructor. I am qualified in 76 sports and absolutely love sport. I think it's a great way to keep fit and encourage people to build relationships. I helped run a large activity centre on the south coast and used to take groups from all walks of life. I especially liked working with children and young adults and encouraging them to try new sports.

What other activities do you enjoy?

Obviously, I love shooting and enjoy the physical and mental aspects of it and to help with this I also do yoga and Pilates as well as weight lifting. I enjoy cycling and during covid I set up the Tokyo challenge for British Shooting where we cycled, walked, pushed, ran, and swam the virtual distance from London to Tokyo and back for the NHS Together charity. I play walking hockey at Portsmouth hockey club which is fun, and everyone is welcome, it's getting more popular for everyone from children to grandparents and such a fun club to be with.

How did you get into shooting/other?

I got into shooting when I was a cadent at the age of 12 but I rekindled my love of it when I took part in the LimbPower games in May 2010 where I took part in many sports. It's an amazing charity that encourages new amputees to get involved in sport and try new things, it helps to build friendships and support each other.

How can others get involved?

There are lots of ways to get involved in shooting either contact me directly through my public Facebook page Lorraine Lambert Paralympian, LinkedIn Lorraine Lambert or direct through British Shooting. My aim is to get more people into sport and shooting is such a great one for people to try.

If people would like to try more sports, I strongly encourage you to contact Keira Rouche at LimbPower. They run events every year for children and adults and put on lots of sports for people to try. Or you could go through the passport scheme that the British Paralympic Association put on each year to try to find the next me, Jonnie Peacock or Hannah Cockcroft.

What sort of skills do you need?

To be fit (I don't mean be able to run a marathon but of good health generally).

An eye for detail. Willing and able to learn and

understand what is being said to you and put it into practice.

What inspired you to pursue this at this higher level?

I love to challenge myself in all I do and if I am going to push myself I want to be the best at what I do.

What sort of regular training do you do when not in the lead up to competitions?

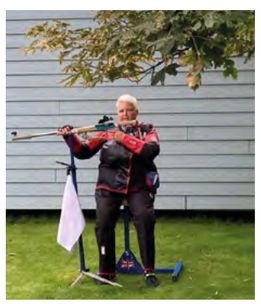
I cycle for general fitness and weight lift as well as do Pilates and yoga. I train my skills on the range for about 3 hrs a day as I am tapering it off now as I am coming up to the games, so in the last week (before the games) I will do an hour a day for 3 sessions on the range and then a couple of days rest before I travel.

Shooting prone at my home range Havant and in Australia in 2019, last camp before Pandemic

What have you been doing to prepare for these games?

I have been concreting my processes into place as this is very much a mental sport and it is all about good repetitions, I have also done a few miles on my spin bike and lots of Pilates and yoga with my two teachers Leanne and Carla.

Doing a classic tree pose on one leg because why not, mid lockdown (lockdown hair)



Shooting standing in my Garden dry training this week before heading to Tokyo, for a press photographer

Do you have any physiotherapy input?

Yes, our Physio Matt P works with the team not just supplying us with physiotherapy but also as a strength and conditioning coach, and helps us from a biomechanical standpoint. Matt has helped me to progress in my career and build a stronger standing position when I shoot. I also work with a Physio at home as being an amputee and active does put a strain on my opposite hip to my amputation, my SIJ is always very tight and even with the Pilates to try to help counteract the movement I am still left in need of a Physio to help me to loosen it off, I have found reactive and especially the sport massage therapist Leanne very good and has helped me so much especially in the lead up to the games.

Can you describe the adaptations for the different positions in this sport for people with amputation compared to able bodied?

In the beginning I shot very much like an AB (able bodied shooter) and as time progressed on I thought it would be better to try to lean or perch against something; this is where the pony my shooting seat came from and this has progressed on in the last 2 years to a perch.

I shoot prone from a seat and chair and kneeling from a kneeling post and seat, I have included photos of the seat, table and post.

Shooting kneeling kneeling post is under my right elbow and I am sitting on a low stool

What have been the challenges associated with these games e.g. pandemic restrictions? Other responsibilities e.g. family, work?

I have trained during the pandemic at home so lots of holding work and dry training as like the rest of the UK we ground to a halt. I had to give up on my gym work in part as I don't have an Olympic weightlifting kit at home e.g a bar and weights etc. I have kept myself busy doing the Tokyo Challenge as well which was tough at times as I had to learn new skills in spreadsheets and it to calculate all the miles and how far we had travelled, giving regular updates and a leader board. I have also done challenges for school and online content for children so that they can do stuff with their teachers and myself while learning from home a particular favourite with parents and children was the sock challenge were my son and I raced pairing socks and throwing them in the basket, I wonder why it was fun for the mums and dads. As well as countless interviews and virtual visits with youth groups, community groups, Women's Institute and sporting groups. My son has also been home during lockdown studying for his GCSE which we have recently found out he passed and is off to college to train as an engineer. My husband worked throughout the pandemic, so it has been a bit of a scary time but to be honest my sport helped me to keep good routines and I have done online course and CPD training as I am a trained counsellor the added time at home has been a bit of a luxury.

What are you particularly looking forward to as you head off to Tokyo shortly?

I am looking forward to competing again it has been so long over 18 months since my last competition so that will be amazing. The excitement is there which is a great feeling I can't wait to see where I am at compared to the rest of the world, I am hoping it will be a pleasant surprise and all my hard work comes good on the day, I want to leave Tokyo knowing I have tried my best and have left everything on the line. The whole atmosphere of a games is unique but this one even more so the experiences I have had is that Japanese people are wonderful and always so friendly and helpful I think these games will be one to remember for many years to come and for so many good reasons not just the pandemic.

THE GAMES, MORE THAN JUST MEDALS...

After the Tokyo Paralympics 2021
Lorraine Lambert, Paralympian

As the world went into survival mode and Great Britain ground to a halt, closed its borders, and tried its best to keep everyone as safe as possible, us athletes were left wondering if the thing we have been striving for was going to happen. The initial advice given out was the games will happen as planned so we strived to keep ourselves motivated and sharp ready for Tokyo 2020. Then as the pandemic gripped the world by the throat the news came out that the games will be postponed, and fingers crossed will be going ahead a year later.

As an athlete my prime concern was keeping everyone around me safe, my husband worked throughout, so we got into the routine of him coming home stripping off in the garage and washing clothes straight away. My son was doing his GCSEs so a lot of home schooling and for me keeping motivated in my training with little support and no ranges to shoot on.

As the rep for the athletes and a mental health champion I found myself organising a charity ride for the staff and athletes of British shooting to raise money for the NHS together charities. My reason for doing it was to help the staff and athletes stay connected even though we were miles apart, to bring a sense of purpose and togetherness.

My sport is target shooting, I am a proud Paralympian I have competed at 2 games so far: Rio and Tokyo. It must be said that Tokyo was amazing and a game like no other for so many reasons. The run into the games wasn't the easiest for me, every competition we tried to compete in was removed from the safe travel list in no time at all we were left with nothing. As the lockdown progressed and the world slowly opened back up, we as athletes were not able to travel to compete and left wondering if we would be ready in time for the games, with internal competitions being our only source of any competition we moved forward.

With the games soon upon us, we were all smartly and virtually kitted out and ready to travel for the first competition in 2 years which just happened to be the Tokyo Paralympic games. Before we travelled, we were advised on how tough these games were going to be with no travel permitted out of the village and strict measures inside the village to keep everyone safe.

It was surprising how quickly we all adapted and got into a routine – I was waking up, spitting in a pot for testing, wearing a mask from the moment you woke up to when you went to bed, eating our meals in a Perspex bubble for one and washing and sanitising our hands every 100 minutes; reflecting it almost sounds insane. As this became the norm very quickly a switch from the ever-present covid world to the of competition happened and the camaraderie of "we are in this together" took over. The challenges for our team within the team were evident and not being able to take part in a holding camp or acclimatization soon hit home on the range. But as a team we banded together and moved forward celebrating the whole ParalympicsGB team of winners by clapping the triumphant as they returned home to block 13 and giving those that haven't quite hit the mark the knowing nod.

As the 2 weeks that felt like a month ended, I can reflect on my time in the village and how I performed, I went to Japan with question marks over my equipment and a big gap in my competition schedule due to covid restrictions, this didn't stop me giving it my all. One of the high points of the games was the people of Japan, so welcoming and attentive they made me feel very welcome in their city of Tokyo, it is somewhere I would love to return for a proper visit to soak up the culture and enjoy the atmosphere I have had a tiny glimpse of whilst in Japan, I can't wait to return. The other was the friendships formed through adversity, through building on the shared experiences of what it was like to be at the games like no other.

Arigatou Gozaimasu.

THE TOKYO PARALYMPICS 2021. BACPAR'S 'INTERVIEW' (Q & A) WITH GEMMA JEFFERSON, PARALYMPIC LEAD PHYSIOTHERAPIST AT BRITISH ATHLETICS

Q1 What was the story behind you going to the Tokyo Paralympics? Were you invited/ selected? Did you choose to go? Have you experienced Paralympic games before?

My full-time role is the lead physiotherapist for the British Athletics Paralympic team, so I was always going to go out to Tokyo and head up the 5 person therapy team we had in place to support our team of 50 athletes. I was in Rio with Para Triathlon, but during that Games the Triathlon team chose to stay out of the village at the competition venue and I flew straight home after our competition had finished so I never got to experience the athlete village or mix with other sports. This felt like a very different experience for me.

Q2 What input and collaboration did you have with the athletes and wider teams during the 4 year cycle, and the imminent lead up to the Games?

My main role during the cycle is to stay in touch with all the athletes and their local support teams. Some of our athletes see British Athletics therapists at Lee Valley or Loughborough, but a number train elsewhere and see local practitioners. I consult on any rehab cases, help with the physical preparation of athletes (such as heat acclimation, jet lag and travel strategies, recovery strategies) and regularly assess and touch base with athletes to check on their progress. It is also my responsibility to create a world-class therapy team for when we are away, so we have spent a considerable amount of time upskilling our therapists and getting to know one another so that we can best support each other whilst we are away and working under pressure during the Games.

Q3 What was your role in Tokyo? Did you work solely – or with others? Was there much interaction with other teams' physios (and/or prosthetists)? If so, what was it?

I was the lead physio or a team of 5 therapists in total (4 physiotherapists and 1 soft tissue therapist). A key part of my role is coordinating when and where therapy support is needed and who is best placed to do that day to day. We had 2 training venues during holding camp, and then 3 venues where we had to offer therapy support during competition time. We always ensure that we have medical or therapy support whenever athletes are training, so ensuring that people were where they were needed, and also making sure that therapists got some downtime themselves, was a big challenge.

As athletics are the biggest team for Paralympics GB we had to have our own separate therapy and medical area. This meant that I didn't see the other sports physios on a daily basis, but thankfully throughout the cycle we all get to know one another really well so I knew that I would have support from other therapists if I needed it.

Q4 Was there a typical day?

A typical day for me involved getting up and probably heading to the training venue to provide therapy cover to any athletes preparing for competition. This was about a 35 minute bus journey away. Once there I ensured that athletes and coaches had all they needed (as the weather changed so much, sometimes this was layers of clothes and shelter from the rain, on another day it was buckets of ice, cold drinks and ice towels!) We really just had to be ready for anything. Some athletes like to get pre-track therapy, to ensure they are moving optimally before they train or compete. Some athletes don't have much therapy input unless there is a problem, so really the key thing for us is building those relationships with athletes during the cycle so we know what they need from us. We do everything possible to make sure that athletes have continuity of care when they go away on team trips – we want them to have the same therapy input they would normally have at home. So we get handovers from home therapists, spend time with athletes whenever we can and make sure we are constantly communicating with both athletes and coaches about how they are training and how they are feeling.

After training I would normally have a bit of time over lunch at the village to get myself sorted for the afternoon and catch up on emails and notes. We would try to have a medical meeting during this time too, so that we could keep the head coach fully informed of any athletes that were having any issues or that we were working closely with to ensure they performed without any restriction. Then it was normally off to the competition track for the evening session. Again, we are there to provide any therapy input needed and also in case of a new injury / problem. Thankfully we had very few new injuries so most of our time was spent doing our normal therapy delivery for athletes around training and competition.

Before I could go to bed I would plan the next day – which therapists had to be at which training / competition venue and when. Are there any athletes that we have to see the next day in order to deliver treatment or assess in more detail? I would normally get to bed around midnight and then get up and do it all again!

Q5 Bearing in mind the pandemic, what have the challenges been in the build up to the games and during them? For athletes, for you?

Some of the biggest challenges happened before we travelled – the preparation, tests and paperwork we had to undergo to just get on the plane felt enormous and was quite overwhelming for both athletes and staff. Every time we took a test, I think we all held our breath a little until the result came back – knowing that a positive test could stop you from being able to get on the plane and head out to Tokyo. Once we arrived, the protocols were so thorough that it felt quite safe. Wearing a mask all day, every day, in the heat was hard work – but it's amazing how you get used to these things. In fact, it feels quite strange walking around outside in the UK without one on!

Q6 What particular memories do you currently have of this experience? Is there an overarching one perhaps?

I always enjoy watching the athletes perform to their best. And after all the challenges that have been presented to athletes and staff over the last 18 months I was so pleased for each and every athlete that they got to be there, represent their country and show the world what they had worked so hard for. We had a lot of fun as a therapy team, and the volunteers and Japanese people made the experience so great. I have never seen so many people be so enthusiastic – they really kept us going and made the whole Games experience really positive.

Q7 Thinking to the next games, what lessons were learned and what could be done better in 2024?

I think that we are probably now a truly adaptable team. Having had to prepare for this Games during the pandemic we have all had to learn to take each day as it comes and be ready to change plans if we need to. This is something I hope we can continue into Paris as I think it has helped us be a more effective team.

The interesting thing about Paris for me is that it's so close to us with a very similar climate. We often look to gain a performance edge over other countries by ensuring that our readiness for long-haul flights or different environments is the best it could be. This time around it will come down to pure athlete performance. And I am quite excited about that!

THE TOKYO PARALYMPICS 2021. BACPAR'S 'INTERVIEW' (Q & A) WITH RICHARD NIEVEEN, TEAM PROSTHETIST FOR PARALYMPICSGB

Q1 What was the story behind you going to the Tokyo Paralympics? Were you invited/ selected? Did you choose to go? Have you experienced Paralympic games before?

As a prosthetist I have always had an interest in sport and going back to my initial years post qualification I'd had thoughts of combining my personal sports interest with my career.

Going forward two decades and the build up to the London 2012 Paralympics, my business, ProActive Prosthetics, was approached by UK Sport who were in the process of conducting a scoping exercise on specialist technical equipment and prosthetics formed part of this study.

This initial contact and subsequent meetings with UK Sport let to ProActive being introduced to a number of talent ID (identified) athletes who were training for Paralympic track and field events in London 2012. Over the time leading up to the games we worked with those athletes, two of whom competed in the London Paralympics.

Dialing forward into 2014 and another four-year Paralympic cycle, we had continued our work with athletes in track and field, in addition to supporting athletes in other sports including kayaking, sailing and wheelchair rugby and also the winter Paralympics in Sochi. We were then approached by British Athletics to help with two more athletes in their build up to Rio 2016.

By the Rio Paralympics in 2016 we supported most of the track and field amputee group of athletes; with that responsibility, I decided I had to go to Rio. Though I made that decision independently, I was given some assistance with the event access by TeamGB once in Rio. In the final days pre competition we had what would have led to a catastrophic socket failure and loss of a certain gold medal with Richard Whitehead; this one incident became a wakeup call.

After a very successful Rio2016 games it was only 10 months until Team GB performed at home at the London Anniversary games in 2017 which was the first time, I received accreditation to join TeamGB.

With experience of two summer Paralympics games and a winter Paralympic campaign, elite sport had become embedded in our daily routine at ProActive; with this the relationships between ourselves athletes and coaches continued to develop in search of those incremental gains. 2020 was extremely challenging as it stopped all travel. In the previous year (2019) I'd had five trips to Iceland with athletes working closely with the guys at Össur. When the news came that Tokyo 2020 was to be postponed it was met with disappointment and I think relief, as the process of developing final prostheses had yet to be completed.

In early 2021 I received my invitation from ParalympicsGB and with it my accreditation as "Team Prosthetist" for the Tokyo Paralympics, receiving this was and will always be a personal career highlight.

Q2. What input and collaboration did you have with the athletes and wider teams during the 4-year cycle, and the imminent lead up to the Games?

While it is typically a 4-year cycle this was 5 years, however with the impact of Covid at least 18 months of preparation and development in the run up to the games was interrupted.

Our experience through the Paralympics in both London and Rio meant we knew what to do both clinically and technically and given we'd worked with the same athletes we had a good foundation and relationship with them and their coaches.

A more significant change was the development of a new generation of running and jumping blades, therefore, we had an increased level of contact directly with engineers from Össur which included a number of weeks or weekends in Iceland with athletes and sometimes their coaches.

The impact of lottery funding can be seen in results with Paralympic TeamGB finishing second to China in Tokyo 2020 and above both Russia and the US. What you learn is that nothing at an elite level is left to chance, and that preparation is key. I would describe working in elite sport as a prosthetist, can be in some ways be compared to an MDT environment, as there are so many players and partners. In elite sport the key players around the athletes are their coach (both personal and team), physiotherapist, strength and condition coach, the component manufacturer (which for many athletes is Össur and the prosthetic support, for both socket and blade fitting.

Most track and field athletes are based around and train in Loughborough where I would always attend athlete reviews at the end of and pre-season, then visit on regular occasions throughout the year. The final lead into Tokyo was challenging due to covid; athletes needed to be extremely careful not to get infected or 'pinged' as the consequence was more time lost and a serious risk of not being allowed to travel to Tokyo. The so-called 'Freedom Day' in July was actually the start of most team members needing to self-isolate to avoid infection.

Q3 What was your role in Tokyo?

"Team Prosthetist for ParalympicsGB"

First and foremost, as a prosthetist you know your job, but operating in a high stress and unknown or unpredictable environment is the challenge.

My role as the Team Prosthetist was to provide support to any TeamGB athlete, in the event of a technical or an issue with their prostheses athletes were signposted to me.

Given the restricted accreditations for Tokyo I was initially assigned to the holding camp in Yokohama for the whole duration of the games, although this was (to my relief) revised prior to my travel to Japan. My first week in Yokohama was the base for all the athletics team and support staff (and a number of other GB squads). From here athletes travelled by coach daily to an athletics facility in Kawasaki.

In addition to my overall support role, I attended the athletics facility on most days and worked with athletes and their coaches making final adjustments to prosthetic set up which was a continuation of where we had left off in the UK

Did you work solely as a prosthetist or with others? And if so, were you the only prosthetist for Team GB? Was there much interaction with other teams and prosthetists? If so, what was it?

Whilst in Tokyo I was the sole Team prosthetist for ParalympicsGB. It is worth mentioning this was the first time a prosthetist had received accreditation to be part of ParalympicsGB.

Given the experience in Rio in 2016 I was aware of the importance of reaching out to the wider prosthetic community so that in the event of a major issue I had access to a fully equipped facility which were Össur's Academy in Tokyo and Ottobocks on-site service workshop.

As Prosthetists, setting aside the fact you are there representing your athletes and country, there is a common bond we all share in wanting to help and improve. Therefore, there were occasional opportunities either taken or engineered(!) to meet with other prosthetists to share what they do and the journey which is a healthy and positive side of the Paralympic movement.

Q4 Was there a typical day? Perhaps an outline of one day would help to set the scene for readers… what was the atmosphere like?

A typical day at the holding camp began early with a covid test and completion of a health register via an App. Once the test was delivered to the officials, we were free! to get on with our day, though as we were on a phone tracking App the authorities tracked our daily movements.

After breakfast in the team restaurant, a coach took us to the training track where the athletes worked through their training and preparation routines. The local Japanese hospitality was very warm and friendly; even at the training track we were welcomed by Japanese support staff each day.

Athletes used their time at the training camp to adjust to the local Tokyo time which is BST +8 and varied their training time, often moving it later in the day to match the time they would be competing. This led to long days at the training track as different athletes arrived at different times. Much of my days at the track were spent watching and learning how the athletes were adapting to the conditions. They had to make a significant adjustment to the climate with temperatures in mid to hi 30's with very high humidity. I had to adjust and frequently replace spike plates on the blades as the heat softened the plastic soles resulting in damage or loss of spikes.

Over the years I had become close to the athletes I was supporting, and I felt that I was able to encourage them in their training sessions particularly in the days towards their competition when the atmosphere becomes one of more tension and increased anxiety.

After training each day it was a coach transfer back to the hotel for dinner in the restaurant with the team and to bed before it all began again the next day.

Four days before their competition start athletes moved to the athlete's village and I moved to central Tokyo into the games hotel which was central to the competition venues. By this time my role was being on standby in the event of a technical issue, in addition to being a close point of contact to a number of athletes.

The start of the games was a welcome change as the preparation and hard work translates into the rewards of medals, PB's and simply doing what you have trained for over the past 5 years.

An Olympic athletics stadium has an adjacent warm up track where athletes are for the final hours of preparation before first and final call before their events, so I would be on hand to cover any last-minute issues.

Much has been said about not having spectators in the stadium, I would say it was obviously different, having

experienced London in 2012 and the carnival atmosphere in Rio. But the athletes are there to do a job and that's what they did; so, what was missed was the opportunity for Japan to see and enjoy its home games.

Q5 Bearing in mind the pandemic, what have the challenges been in the build up to the games and during them? For athletes, for you?

As mentioned earlier, the greatest challenge for athletes we worked with in the buildup, was the loss of contact time at either the clinic or at test events and the restriction on overseas travel.

For me personally, managing and supporting my clinic, ProActive Prosthetics, a busy private facility, through the pandemic was a difficult period of time. However, thanks to the clinical and technical team we were able to provide a full service to both our patients and the Paralympic athletes.

In the lead up to and when in Tokyo athletes and the support staff had to maintain extremely strict bubbles, as the risk of a positive test or infection was potentially catastrophic. This added to the tension around daily testing; "false positive" results occurred on a number of occasions in Tokyo, at which point individuals thought their games was possibly over, while they endured an anxious few hours waiting for confirmation of the results.

From a personal perspective and as already mentioned, as a prosthetist you know what your job is and your responsibilities; the challenge at the Paralympics is doing that in a very different environment and sometimes under acute pressure.

Q6 What particular memories do you currently have of this experience? Is there an overarching one perhaps?

As Gemma describes in her Q & A, the testing and immigration paperwork before getting on the plane to Tokyo was at times overwhelming for athletes and staff.

The weather was significant, having spent 2 weeks with temperature of 35 + degrees and 80 % humidity, in the week of competition it rained most days and we had temperatures similar to the UK

However, the greatest memory has to be the opportunity to be part of the most successful British Paralympic team, that finished second in the overall medal table and the privilege of working with a number of athletes who are and will always be friends with whom I can share and reflect on Tokyo 2020.

Q7 Thinking to the next games, what lessons were learned and what could be done better in 2024?

What I learned is there are many common threads between other sports and athletes which can be shared, in terms of materials, technology and training that prosthetics could benefit from. For example, many para-athletes have benefited from training alongside able-bodied athletes to share common approaches from coaches. Conversely, other sports could learn from what we do in prosthetics; an example of this is possibly the inclusion of carbon soleplates in the track shoes emerging in able bodied sport.

At ProActive we have a specialist Physiotherapist and work with a number of others, and I feel going forward there is an opportunity with the experience of specialist physiotherapists around the country the opportunity to develop the awareness of sports and best guidance for up-and-coming athletes.

In the build up to Tokyo England athletics started a "Para-athletics series" for coaches, the first of which was a webinar coaching seminar on sports prosthetics. This event was to help coaches who were working with amputee groups, which is a key area as we move to Paris 2024.

ELIZABETH'S LEGACY OF HOPE

Victoria Bacon, Founder and Trustee

Elizabeth's Legacy of Hope (ELoH) is delighted to have been invited by BACPAR to tell you about the work we do to support child amputees in some of the poorest parts of the world.

We received our registration from the Charity Commission in 2011, becoming the only charity to work with partnerships in our chosen countries to support the needs of children missing limbs including, and most importantly, providing prosthetic care to those missing one or two legs (below or above the knee), thus giving them vital mobility.

The charity was founded by myself and my twin sister Sarah Hope following a tragic family event in our own lives which, completely unexpectedly, taught us – first-hand – about the pain of amputation, and the limitations it presents. This learning curve began in April 2007 when a London bus careered into our mother Elizabeth (who was 65 years old at the time) whilst she was walking into a bus station in south London, accompanied by Sarah and Sarah's daughter, Pollyanna, who was two years old at the time. The three generations had just begun their journey to visit me in hospital. I had given birth to my eldest child just two days before.

Elizabeth died that morning, Sarah was badly injured, and Pollyanna lost her right leg, below the knee. There began weeks of shock, grief and pain, which morphed into a gradual process of recovery and the rebuilding of shattered lives.

However, suddenly, too, a new 'education' began – for the whole family – related to Pollyanna's amputation. Within days of her accident, and the realisation that her injuries were too severe for her severed leg to be re-attached, discussions began about a prosthetic. This was a 'given' – and whilst a prosthetic leg for a child at this significant stage of growth is of course far from straightforward – there were no discussions about whether she would have one because, fortunately for Pollyanna (and other amputee children in this country) prosthetic legs are available under the National Health Service. Albeit with difficulties and upheavals, almost all child amputees in this country do not have to grow up with the expectation that their disability will render them im-mobile.

But, as we realised after we began to investigate the wider problem of child amputation across the world within a few months of our mother dying, this is not the case in many of the world's poorest countries. We discovered that in many countries prosthetic support is simply unachievable for child amputees missing legs because it usually has to be paid for privately and most families cannot afford it. Growing children need at least two prosthetic legs a year, and some need operations as well because bones growing out of amputated limbs are dangerously prone to infection; and unless the infected bone is effectively treated with antibiotics it has to be dealt with in an operation called 'bone-trimming'. If it is not treated and the infection spreads it can prove fatal. It is a condition called 'osteomyelitis' and is frighteningly common especially in countries where hygiene is poor and good medication is scarce.

As Pollyanna has grown up (she is now 16 years old) she has experienced the pain of osteomyelitis herself four times and has therefore had four operations; and periods of healing have followed during which she has not been able to 'wear' her prosthetic leg. However, because of the excellent care she has received on each occasion she has always made a good recovery and Pollyanna is now not only highly mobile but has become a gifted and hugely inspiring dancer – including being able to point on an especially designed ballet leg. Her achievements in this regard are wonderfully inspiring and I hope uplifting for all those who feel their disability might hold them back from achieving their goals.

It is inconceivable that children missing limbs in this country would not receive a prosthetic limb but the realisation for us that this is a reality for thousands of amputees in poor countries drove us to do something about this problem.

Initially we tried to give money to charities in some of these countries, asking them to specifically provide for amputees – particularly those missing legs because this was the amputation we most closely understood because of Pollyanna; and these are the children who were missing out on education and therefore their life-chances restricted – but all of the organisations we approached were unable to assure us that the funds we provided would be given, specifically, to amputee children. Not only are child amputees who are immobile because they are missing a limb unable to go to school, therefore not receiving an education, we discovered that they are almost certainly some of the most marginalised, stigmatised, and lonely children in the world. Often, they are simply 'put' on streets to beg; forced to do so by parents who see them as a funding stream for the rest of their family, whilst despairing because they cannot manage their disabled child any

other way. The cruel reality for many child amputees, too, is the stigma they are forced to live with because of perpetuated myths that state an amputee is somehow a 'victim' because of something bad they, or their parents, have done in a previous life; and amputation is their punishment.

So, eventually, we decided that the only way to do this was to set up charity with the aim and objective of providing prosthetic support, working with partnerships who only receive funding from ELoH after thoroughly researched assurances are given that the partnership is able to implement the care ELoH seeks to provide.

ELoH's first partnership launched in May 2011, in Tanzania; this was with the Friends of the Children of Tanzania (FoCT). Together, ELoH and FoCT oversaw the establishment of a limb clinic in a town called Kagondo, which is located on the shores of Lake Victoria, in the north of Tanzania. The limb clinic still functions although it is no longer funded by ELoH because alternative funds have come through – but over the years it has helped many children who have lost limbs through illness, accidents, improper treatment from unqualified 'doctors' and – very sadly – deliberate amputation. I remember the first amputee ELoH helped was cared for at this clinic; it was for a boy called Sharif. He was fourteen years old and lost his leg whilst washing his clothes in the lake because he was badly bitten by a crocodile.

The children in Tanzania – indeed in all of the countries we work in, and in those countries where there are children we have not yet been able to help – are far more prone to amputation than children in developed countries because, inevitably, they don't receive the care the need at the point at which they need it; coupled with the fact accidents are more prevalent, medication is harder to come by and hygiene is not nearly so good. The global pandemic of course, too, has had an impact, slowing down much of our work, funding our children – and their families – with hygiene and sanitation kits.

However, with its partnerships ELoH's work is continuing and we are now supporting over thirty child amputees in Sierra Leone and Liberia, (Image 1) in west Africa, with all of their prosthetic, educational and holistic needs. Most of these children are lower-limb amputees – some are missing both legs, some above and some below the knee. All these children are offered prosthetic limbs which are made at clinics in these two countries – and the package of medical care we provide also includes all the rehabilitation and physiotherapy they need to ensure their prosthetic leg is safe, comfortable and manageable. We also give them crutches if they also need these, and sometimes a wheelchair. All our children – including the upper limb amputees – receive an education (we pay for transport to and from school too, as well as uniforms and books). Our goal is to give as many child amputees as we can the same life chances as their peers, and an inclusion in society that pulls them out of the isolation that can be as debilitating for them as their physical disability.

We work, in Africa, with an American organisation called World Hope International (WHI); our partnership with WHI is proving to work extremely well – it began in 2017 in Sierra Leone, and we asked them more recently to support us in Liberia – which they now do and we are hugely encouraged by our mutual understanding which is enabling us, together, to completely change the lives of these children, so much for the better. At the moment our funding (in line with our legal objectives) states that our care is 'limited' to providing paying for care until our amputees reach the age of 18 – but we are now exploring ways of paying for on-going education costs if it is necessary and appropriate.

We also look after child amputees in India – at a 'village' for orphans who are looked after by a reciprocal organisation called HEAL (Health and Education for All.) This model of care is different to Africa, in that we don't cover education costs for these children as this is funded by other charities, but we have (as we did in Tanzania) funded the establishment of the limb clinic, where we pay for repairs to prosthetic legs, new legs when needed and all the associated medical care required (Image 2). Also, in India, we purchased a van and paid for it to be converted into a mobile clinic so amputee children who live away from the village but also need our care can also receive the support we need. This partnership, too, is proving to be very successful in terms of the number of lives we are changing – we are now into our seventh year of this partnership and are delighted to be part of the expansion of HEAL.

I do hope the story of Elizabeth's Legacy of Hope will have been of interest; thank you for reading this. Any support would be gratefully received; we are a small charity with a big heart and bigger ambitions. There are thousands more children who need our help.

Our registered charity number is: 1141287 and our website, for more information, is:
www.elizabethslegacyofhope.org

ÖSSUR

Pushing the Boundaries of Sports Innovation

In 1971, Icelandic prosthetist Össur Kristinsson founded Össur and developed the breakthrough silicone interface for prosthetic sockets, the Iceross® liner. Building on that pioneering tradition, Össur has developed numerous life-changing products. Fifty years later, we're proud to continue his mission to pioneer mobility solutions based in science and innovation.

WRITTEN BY RACHEL HUMPHERSON, ÖSSUR ACADEMY CLINICAL SPECIALIST PHYSIOTHERAPIST

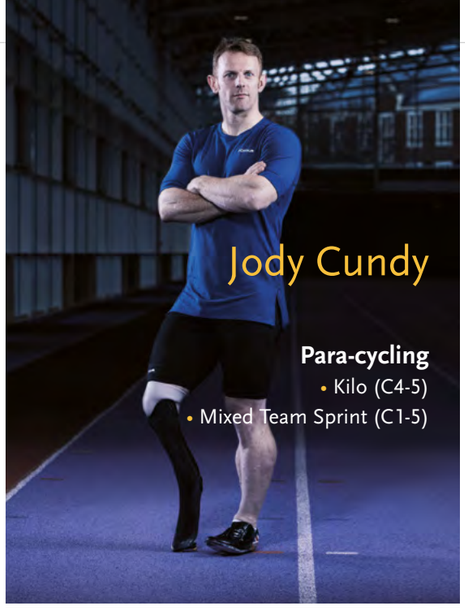
This year is Össur's fiftieth anniversary and has been a double celebration with the Tokyo 2020 Paralympics having gone ahead at last. The 2008 Paralympics in Beijing was a turning point for para-sport. The investment in a championship, filled out arenas and the publicity to go with it, put more and more of these athletes in the public eye. The subsequent legacy of the 2012 London Paralympics meant the world opened up to para-athletes.

"Did you spot any Team Össur athletes on Netflix's Rising Phoenix?"

Össur's iconic Cheetah running blade is featured prominently throughout the Netflix film 'Rising Phoenix', worn by several of the individuals as they demonstrate incredible acts of athletic prowess. The first sport foot of its kind when it was launched in 1996, the Cheetah was and has remained the uncontested 'gold standard' for athletes with lower limb loss and limb difference ever since. Modelled after the hind leg of a cheetah, and using breakthrough technologies in materials, design and engineering, Cheetah blades have been developed to store energy and use it to propel the runner forward. When the runner's foot hits the ground, the blade compresses and stores potential energy. Then it rebounds to push the runner forward using 90% of the energy generated by a runner's stride. This enables an athlete to push harder and go further.

"Something which is often forgotten, is that it isn't just our products that have become better, but also the athletes themselves. We represent only a small part of it, the rest is down to our athletes. The entire worldwide scene for para-athletes has developed incredibly over the past eight years. Many more are able to dedicate themselves to their sport full time by getting sponsorship deals and professional backing. Better conditions lead to better athletes", says Össur's Edda Heidrun Geirsdottir, Communications and PR manager at company headquarters in Reykjavik. With her 23 years at Össur, where her last twelve have been focused on Team Össur, she knows the ins and outs of the whole organisation, and especially the team.

1971-2021 50 ÖSSUR LIFE WITHOUT LIMITATIONS



Scan the QR codes *to learn more.*

We're proud to introduce three new additions to the existing sport solutions: Cheetah Xcel for sprinting, Cheetah Xpanse for long jump, and Cheetah Xceed for distance and trail running. Alongside the new Nike SoleX with Tread and Spike Pad – improved to provide specialised traction - these blades join the Cheetah Xtreme (fast, short-distance sprints), Cheetah Xtend (longer sprints and short-distance running), Cheetah Xplore (everyday use, various sports and activities) and the Flex-run (high impact activities).

In co-development with Nike we developed the next generation Nike Soles, in addition to our existing soles, to enable better adaptation to different sports activities.

Cheetah® Xcel

Cheetah® Xceed

Cheetah® Xpanse

Team Össur is sometimes referred to as the company's very own Formula 1 team. The group consists of a handful of athletes from the very top of para-sport. These test drivers inspire people with disabilities all over the world. Team Össur members get access to the best products on the market and work closely with our R+D team in Reykjavik. On a regular basis they participate in the development of products by testing them and providing important feedback. This collaboration has led to the development of the next-generation, sports-specific Cheetah prostheses, with many of the Team Össur athletes competing on them at Tokyo 2020. ••

Advertorial Feature

DIRECT SOCKET TF

A Physio Perspective

The Össur Academy team have been touring the nation introducing clinicians to an innovative new solution for customisable sockets, Direct Socket TF.

Clinical Specialist Physiotherapist Rachel Humpherson has been training physiotherapist's like Anna Housley - from the PACE Rehabilitation Clinic in Bredbury - who shares her thoughts below on the impact of socket solution like this for users.

Anna Housley

"DSTF has been a revelation for a lot of our clients."

"I have been directly involved in the manufacture and fitting of four sockets now and they have all worked brilliantly. The clients so far love them: the comfort when sitting down, the lack of visible trim lines, the freedom at the hip when walking... these are all things our team has heard more than once and really highlight the natural feeling these sockets create.

"I can't even see it under my clothes, it's like it's not there" one of my clients said.

The physio involvement is not vastly different to a traditional set up - as long as you focus attention on glutes activation - and the exercises on the Össur app provide a great place to start. Being able to give the client that visual feedback they can access at home helps provide support even after they've left our clinic.

Yield training has been the most involved from a therapy point of view, due to the lack of a seating area in the sockets – there is nothing for clients to rest back on which some are used to from traditional set ups. And it's true that some have found the freedom around the hip and the lack of weight in the sockets a little disconcerting but with training and repetition, our clients are now tackling slopes and stairs with confidence and ease.

I really like these sockets; they make anatomical sense and I love the fact that clients have no option but to correct their biomechanics and 'walk properly'! It can be no bad thing that clients maintain their muscle strength and activity for as long as possible, and we hope in time we will see the benefits of a more natural walking pattern with preservation of the sound side and improved long term natural biomechanics and function."

Contact Katy and the Össur Academy team at **kfarr@ossur.com** to learn more about Direct Socket TF.

WWW.OSSUR.CO.UK

ÖSSUR
LIFE WITHOUT LIMITATIONS

PROFILE PAGE

Heather Howe, New Brunswick, Canada

I work with amputees in a private clinic based in New Brunswick, Canada.

I became a physiotherapist in 1995 and started my career working on the Amputee Rehab Team for our provincial government's workers compensation system. Though I loved working with amputees, 5 years later I moved into other departmental roles.

25 years later I returned to where it all started in providing physiotherapy assessment and treatment of amputees with the same prosthetist I had worked with in 1995. This time however, I joined her team in the private practice industry. The addition of an in-house physiotherapist was new for the clinic after feeling the impact of relying on a deteriorating public health system to deliver the training needed to restore function after receiving a prosthesis.

I work in direct partnership with three prosthetists providing prosthetic care for individuals who have lost limbs due to disease, congenital defects, and trauma. Most of our patients would be in their adult years, but we do see some children as well. Because the setting is a private clinic, I would follow the patient from pre-prosthetic care to ensure musculoskeletal readiness, through functional restoration after receiving their prosthesis.

The biggest challenge in my role with amputees is the access to funding, both for the coverage of costs related to prosthetics and the technology that can significantly improve function, but also for the provision of the physiotherapy functional training itself. Adjunct therapeutic services of training a person how to use their prosthesis is often not supported by funding agencies and therefore patients must make a difficult decision to use personal means.

The effects COVID has had were not as drastic as seen in other parts of Canada and the world. The use of personal protective equipment and constant disinfecting was by far the biggest change to operations.

I joined BACPAR because I was looking for resources to help support my efforts in continuously improving the effectiveness and efficiency of my delivery of patient care. What I can bring to BACPAR is in sharing what I learned along the way in developing and creating the active role of a physiotherapist in a private prosthetic clinic in New Brunswick, Canada.

PACE REHABILITATION – MPK WEBINAR 7TH MAY 2021

Jason Robinson, Physiotherapist PACE Rehabilitation

Pace Rehabilitation began in 2003 as a small clinic in Stockport set up by a group of like-minded clinicians who wanted to offer quality prosthetic services in the private sector. Since then, the organisation has grown with two additional clinics in Amersham and Glasgow.

Pace is the largest independent prosthetic service in the UK. We work predominantly, but not exclusively, within the world of compensation claims following catastrophic injuries, including lower limb trauma and amputation. We assist patients to optimise their rehabilitation outcome and return to a fulfilling life.

We have a diverse MDT incorporating Rehabilitation Consultants, Prosthetists, Orthotists, Clinical Psychologists, Occupational Therapists, and a team of eight Physiotherapists split across the three clinics. As a physiotherapy team our main objective is to assist the MDT in the trial and provision of high-quality walking, sports specific and microprocessor components and orthotics allowing patients to return to the everyday activities, hobbies, and activities important to them. We provide both clinical and expert witness services.

As physiotherapists at Pace, we have been fortunate to work with many patients' using various microprocessor-controlled knees (MPK) through all stages of their rehabilitation which has allowed us to develop a process for training patients to use these great prostheses. Since the introduction of the NHS MPK policy, we have been approached by former colleagues and friends within the physiotherapy community asking for advice on instructing patients in the use of different MPK devices.

Following requests for input around gait re-education and technique training tips on MPKs the Pace physio team discussed holding a training day with patient demonstrations. This was scheduled for April 2020. After a lot of work to organise the day it unfortunately never happened as COVID-19 put an end to any in-person training at that time. We took the reluctant decision to move the training day to an online webinar (a very scary prospect). It was not as we intended but did allow us to open the training to more therapists, resulting in 58 therapists in attendance.

Overall, we were pleasantly surprised to find that the webinar proceeded without too many technical hiccups, and we were able to share what we consider to be good practice when training patients using a variety of MPKs. The feedback we received was positive and justified all the pre-webinar nerves that the team had.

From the feedback received many of the attendees enjoyed the format (as much as you can virtually). There was lots of interest expressed in further education in the concepts around strength and conditioning training with patients to optimise ability when using an MPK. We as a team feel that this aspect of training really makes a difference to a patient's ability as a prosthesis user and it was nice to see that this was so well received. Perhaps we could present at a BACPAR study event.

Unfortunately, due to time commitments and busy clinics there are no imminent plans for further webinars or training days, but the physio team are all looking forward to hosting a Kinetic Control for Amputees course delivered by Lou Tisdale in October and November 2021 at our Bredbury clinic.

REFLECTION ON THE PACE MPK WEBINAR 7TH MAY 2021

Catherine Spencer
Physiotherapist in Amputee Rehabilitation, West Midlands Rehabilitation Centre, Birmingham

In May this year Pace Rehabilitation hosted a webinar on MPKs and Physiotherapy. The course was originally due to be delivered face to face however, due to the pandemic, as has been the case with many courses/ meetings etcetera, this was postponed and the guys at Pace were able to offer the training virtually. This was positively received by most as it meant that there was no longer a limit on the number of attendees and also for some it now meant this training was far more accessible to them. The later included myself as I was off on maternity leave at the time but after receiving the email from Jason informing us of the webinar I was able to register my interest and be included in the Webinar invitation to attend.

A little more about me before I proceed with my review of the training. My name is Catherine Spencer and I am one of the Physiotherapist working in Amputee Rehabilitation at the West Midlands Rehabilitation Centre in Selly Oak, Birmingham. I work with both adults and paediatric patients and we cover the whole of the West Midlands either via our centre or via the Satellite clinics that we host. We deliver prosthetic rehab for upper limb, lower limb and multiple limb loss patients and we have a number of Veterans who attend for prosthetic management. I have worked at Birmingham now for 5 years but before doing so had very little amputee experience.

The Webinar as a learning opportunity was very appealing to us as a team as we were always on the lookout for more training in this area since NHS England approved the funding for MPK provision, as a large centre we have a fair amount of amputees who meet the MPK criteria and, although we do have veterans on our caseload, our expose to MPKs prior to NHS funding approval was minimal as they often attend the centre for repair and maintenance of the limb having completed their rehab at Headley Court/ Stanford Hall. For me, on a personal level, it also provided a nice unpressurised opportunity to start to get back into the 'work' mind set and to help recall aspects of what had been my day to day 'normal' prior to starting back officially a month later.

The course was well organised, the information was emailed out in a timely manner prior to the webinar and Jason was always contactable for any queries. The session itself ran without any technical difficulties and then following on, the course content and certification of attendance was all sent out quickly including the links to the recordings (for which there was an extension so they were available to you for longer).

The agenda for the day included Early Training, Strength and Conditioning, followed by Yield and Advanced gait training, closing with the opportunity for questions and discussion. Although there was allocated time for this with the virtual delivery there was also the chat room available and so this allowed questions to be asked throughout the training which was good for not forgetting what you want to ask whilst waiting for the allocated time, it was also good for prompting discussion at points during the presentation where it was appropriate. I think for myself and the team I work with the content felt appropriate and the level at which it was delivered was also correct, briefly visiting the functions of the knee and considerations around prescription, non-MPK versus MPK before focusing on the Physiotherapy input and rehabilitation considerations for the individual.

For the team at Pace the prescription of an adjustable ankle along with the MPK is far more commonplace than it is for us within the NHS and there was acknowledgement during the teaching that the MPK's do well with both patient adjustable ankles and hydraulic ankles. As with most prescription choices the outcomes achieved are user dependent with the adjustable ankles often showing limitations in other areas, for example walking up slopes. We have recently had a couple of patients who have been prescribed an adjustable ankle with their MPK prescription and data from the outcome measures achieved by these patients will be looked at as a future project by the team.

To expand on the training further and continue our learning from it, we allocated some time to go through our notes together and discuss what we had taken from the training individually, what bits had stood out to us, what we were doing that was the same or similar and what we weren't doing but could be or should be doing. We allotted ourselves 2 hours, a 1-hour discussion followed by 1-hour with a patient who had kindly agreed to come and be a guinea pig so we could try out some of the teaching and training points on him together. Allowing us to see in reality what works well and what maybe doesn't work so well. This was really good to do specifically in a 'training session' where we had allowed ourselves the time, rather than trying to

do something similar during the patients' treatment session where you are often time and space limited and you do not have the luxury of all being available.

Some of the keys points and changes to our practise to consider from the training were;

- the importance of starting balance work early but with an awareness to compensatory mechanism that an individual may adopt, and utilising lock feature early on where required.
- additional ideas around yield training and educating the patient to be able to differentiate between yield and knee swing.
- deliberately triggering stumble function – not something we currently routinely do but on discussion felt it would be useful to demonstrate to the patient rather than just talking about it and them experiencing it when they do stumble.
- Senior fitness test as a baseline measure for the elderly population – we do not do this or anything similar and all of our patients complete the same outcome measures regardless of age. We complete the outcome measures as instructed by the MPK policy but looking at our patients more holistically the senior fitness test is something we may consider doing with our more elderly MPK users.
- Using T's and V's with turning, deliberate stance and 'walk to do' were also some advanced gait training techniques not currently utilised but that we are knee to put into practise when rehabbing our patients.

Overall, the session was very useful, very relevant and enjoyable. It personally gave me both a sense of reassurance, in that we are doing well with our MPK rehabilitation programme delivery at the moment, but also encouraged reflection on current practice, and a drive to build on existing training points and exercises in order to optimise outcomes and the functional ability our patients can achieve on their MPK prescription.

PROFILE PAGE

THE ART OF THE POSSIBLE OR THE ADVENTURES OF AN ACCIDENTAL SPECIALIST

Kate Sherman, Physiotherapist, MBE

Following Mary Jane's request to write something that would interest the readership about the work I have done, I scoured my brain to think how best to present this article and summarise my experiences and thoughts. Thus follows a whistle-stop tour of what happens in the rehabilitation phase after life-changing trauma through conflict.

I joined the then Defence Military Rehabilitation Centre, DMRC Headley Court as a Band 6 physiotherapist in 2002. This was a very cohesive inter-disciplinary team, with a history dating back to the 2nd World War and the rehabilitation of the hugely traumatising injuries from that conflict. The onsite combination of doctors, nurses, exercise rehabilitation instructors, mental health teams, physiotherapists, occupational therapists, social workers (to name but a few of the disciplines available) meant that any issues flagged could immediately be addressed in the therapy plan for each individual patient.

My initial caseload was a combination of sports injuries, chronic overloading, and trauma following both military and adventurous training as well as road traffic collisions etc. Both staff and patients had extremely high expectations of what could be achieved, after all we were providing rehabilitation to people required to perform at extremely high levels of physical endurance and mental resilience for their jobs. Most people that we treated came to us with an extremely high background level of fitness and a healthy attitude to exercise, making our lives as therapists much easier when it came to rebuilding function and meeting goals.

Two-years into what was primarily high-level sports and musculoskeletal rehabilitation, I was asked a new question. Would I like to work with some patients returning from the conflict, first in Iraq and then Afghanistan? I jumped at the opportunity, as did my senior physiotherapy colleague Joy Hill, and we were given the chance to develop the physiotherapy service that eventually turned into the "Complex Trauma Team".

In the first months we observed the extent of injuries coming back and identified what we needed to learn to give those individuals their best chance of recovery and attain the highest levels of function possible. To that end, alongside the clinical load, we went on many training courses and learned from many specialists, including some of yourselves. Due to the nature of the situation, no-one returned with only one injury, the list included not only multiple and frequently high-level amputations, but also spinal cord injuries, peripheral nerve damage, multiple fractures, burns, soft tissue loss, minor brain injuries (more severe brain injuries went to our Neurological Team) and psychological trauma. There were, of course, long-term repercussions of all these conditions, which included managing severe scarring and chronic pain. All these patients worked together in the rehabilitation setting, often coming from the same military units and teams "on the ground". This gave them a sense of family and cohesion whilst away from their actual families, but also came with a level of competitiveness common in the military that could be both greatly beneficial to motivate some and extremely difficult for those who were struggling with their situations.

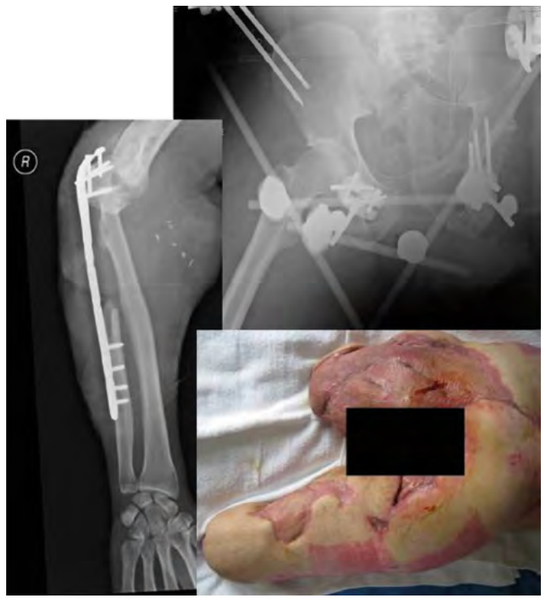
Limb salvage patients working alongside amputees led to a lot of questions about the benefits or otherwise of elective amputation to increase function. Not necessarily a hard question to answer when two previously equally fit individuals injured at similar times were now in very different situations, with someone who had a transtibial amputation returning to running and the other with limb salvage still experiencing mechanical pain on walking, requiring walking aids and further revision surgeries with no expectation of the limb being able to tolerate running in the future. The much harder question to answer when faced with chronic neuropathic pain, +/- central sensitisation and the effects of psychological trauma, was whether this would be any different following amputation.

Throughout all patient experiences, I learned the vital importance for any rehabilitation team of having psychological support available to patients. Additionally, I learned that it needs to be the correct type of support, with specialists in the fields of physical trauma, pain and complex PTSD being hugely important. Someone without the necessary skills and training just cannot be expected to see and manage all the issues that arise for these individuals, and it is only by us all working together that we can maximise

the benefits of the rehabilitation environment in the correct timeframe for each individual. As we all know, not everyone responds in the same way and different people need to address different elements of their needs in different orders and timeframes for it to be effective for them.

Most of our amputee patients during the conflict period were double amputees, generally lower limb with some upper limb damage and varying amounts of fractures, burns and soft tissue loss. This created the need for a large amount of "hands-on" therapy input alongside education and graded exercise therapy from the start to minimise secondary problems such as loss of range and strength across remaining joints, and to reverse the inevitable problems that occur from prolonged intensive care and hospital stays from multiple surgeries. This work started at Selly Oak Hospital followed by the move to Queen Elizabeth Hospital, Birmingham and was continued by us at DMRC. Communication between these teams was vital, and various telephone and in-person meetings were used in an attempt for all relevant parties to have successful and timely consultations with each other. The military also increased their clinical presence at Birmingham to help balance the workload, as both hospitals had their normal workloads alongside this increased demand from military casualties.

Working at DMRC, with such extremely determined individuals has shown me how much can be achieved when the team concerned (patient, family, and clinicians) have the capability, the time and the funds to "try and see what happens". Blocks of in-patient



Examples of conflict injuries

rehabilitation, interspersed with time at home, meant that intensive training could be practiced at home and the refreshed again by the therapy teams prior to problems or bad habits becoming established. Rehab trips to challenging environments such as National Trust properties, Guildford city centre or The Tower of London with triple and bilateral transfemoral amputees showed them what they could achieve, even if the public thought I was being incredibly mean. One elderly lady even offered one of the patients her walking stick! As it happens, most of the harder challenges were dreamed up by the patients themselves and our staff teams enabled, made running repairs, and fine-tuned prostheses and rehabilitation accordingly to meet these goals. Whenever we thought a challenge may be a step too far, we were almost always proved wrong, and the outcomes were built into our rehabilitation ethos.

Another helpful element of military rehabilitation is that service personnel continue to be paid whilst under rehabilitation, thus freeing them and their families from any financial concerns that may otherwise impact on their ability to fully engage in rehabilitation, a problem that interferes for many in both the NHS and private practice. However, once patients left the military we were unable to continue their rehabilitation. This time restriction could be very difficult for those individuals who were not psychologically ready to engage with physical rehabilitation within that timeframe. It is understandable that after spending a long time away from family on military deployment and having a life-changing injury that someone would want to spend time at home and not leave again to spend long periods in a rehabilitation facility. Add psychological trauma into the mix and it is difficult to find any one method and timeframe that will accommodate everyone's needs. Whilst there are some specific veterans services available, the majority of longer-term needs must be met within the NHS and via charitable services once they have left the military.

Evidence base for what we were doing was challenging at the time and involved researching articles and textbooks written in the aftermath of the 1st World War. The types and combinations of injuries we were seeing are only ever really seen as a result of conflict, so what is now classed as high quality research and evidence specific to that situation was challenging to find. Articles written after WW1 and WW2 were not written to quite the same documentation style as required now! Other conflicts did not necessarily lead to the same types of injuries and a lot of the time we pulled research and evidence from many different fields and countries to find applicable and adaptable threads and applied strategies such as those now described as "disruptive thinking". Social media meant that our patients did a fair bit of their own investigation for different ways of improving their function and situation, and many of those ideas were integrated to varying degrees into the rehabilitation process. Opportunities to visit and share with the rehabilitation teams in the American military were highly useful to compare and contrast working practices, and to learn about new international developments such as targeted muscle reinnervation, osseointegration and the ever evolving world of prosthetics and orthotics.

It was such an inspiring experience that my planned 2-year stint as a MOD civilian turned into an 18-year career path with a re-specialisation in prosthetic and orthotic rehabilitation, a Band 7 post and an MSc in Rehabilitation Studies from Strathclyde University. Last year I was deeply honoured to be awarded an MBE for my services to military casualties, a job that I was only able to do because of the supportive and pro-active people that surrounded me as colleagues and patients.

Following the long period of major conflict in Iraq and Afghanistan we transitioned DMRC Headley Court to Stanford Hall in Loughborough and met new challenges. We needed to deal with the loss of a large proportion of knowledgeable staff, moving people half-way up the country to brand new and untested facilities, and employing and training many new colleagues. This new facility and wealth of new personnel, with their various backgrounds and experiences, will develop the ever-changing world that is healthcare and rehabilitation. We all had the immediate opportunity to demonstrate this with the Covid pandemic, where there have been Covid negative and/or shielding in-patients needing rehabilitation and out-patients that we had to develop improved telephone and virtual communication skills with.

As we emerge from the pandemic I had a very similar life re-evaluation that many people did. It led me to the decision to leave what had been a hugely fulfilling job, to move both closer to my family and to a geographical location that offered me more of the work-life balance I dreamed of (Peak District walks and countryside living). To that end, rather than having to consider another attempt at re-specialising and leaving the field of trauma rehabilitation, I was fortunate enough to be offered a job with the Pace Rehabilitation team in Bredbury and thus start a new adventure! I have now been with Pace for three months (at the time of writing) and am learning new things daily (mostly IT challenges given my baseline skillset here!) with another group of individuals who have a different but equally eclectic mix of injuries, dreams and backgrounds as the military cohort. I find it deeply satisfying to know that after more than 20-years as a physiotherapist I can still be inspired and motivated daily by both patients and colleagues. With the challenges and low points that the pandemic has brought all of us, daily evidence of such positivity can't help but re-energise those of us that have the opportunity to work with people after catastrophic injury.

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