BACPAR

BRITISH ASSOCIATION OF CHARTERED PHYSIOTHERAPISTS IN AMPUTEE REHABILITATION

The Journal
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Guidelines for Journal Article Submission

- Please send the article as a Word or PDF file.

- If your article includes pictures please also send these as separate files (JPEG, BMP, GIF, PNG etc format) at the highest quality you have. It would really help if you could put your name on them so they link to the article please!!

- If your article includes graphs please also send these as separate Excel files and name these the same as your article followed by a number in the sequence that they appear in the article (as with pictures). If all the graphs are in one Excel file this is fine.

- Finally, if there is anyone out there who would like to advertise in The Journal, or if you know anyone who you think would like to, please let me know.

Please email bacpar@flutefamily.me.uk with your submissions and any queries

DEADLINE for AUTUMN edition Friday 16th August 2013

Welcome

Hello all and Happy 20th Anniversary to BACPAR. The first BACPAR meeting was held in May 1993, an executive committee and officers were elected and Clinical Interest Group (now called Professional Networks) status with the Chartered Society of Physiotherapy was achieved in October of the same year.

There are a number of the original Executive committee members still heavily involved in BACPAR; Penny Broomhead, Anne Berry, and Gillian Atkinson (if I have missed anyone- please accept my apologies).

The BACPAR executive committee plans to celebrate our anniversary at the Conference and AGM in November- any ideas regarding how best this has been achieved can be sent to me at Louise.Tisdale@nhs.net, including ideas for the conference programme. Conference dates for your diary - November 14th-15th 2013 at Wolverhampton Science Park. The conference planning team will be established at the Executive Committee meeting on the 6th March.
Many things have changed and developed in amputee rehabilitation (granted -not all for the best) over the last twenty years. BACPAR and its membership have been proactive in the production of clinical and educational guidelines, the organisation of study days and conferences and representing the membership in consultations and at stakeholder meetings amongst other activities.

When BACPAR publishes guidelines it does not sit back on its laurels, which bring us to congratulating Tim Randall and Karen Clark (BACPAR guideline co-ordinators until 2012) for their persistence in leading the update of 2003 Prosthetic guidelines (Broomhead et al) , now available at http://www.csp.org.uk/publications/clinical-guidelines-physiotherapy-management-adults-lower-limb-prostheses.

The publication of the update of the Guidance for the Education of the Pre-registration Physiotherapy Students is imminent and the update of the 2006 Clinical Guidelines for the Pre and Post-operative Physiotherapy Managements of Adults with Lower Limb Amputation (Broomhead et al) is in progress under Sara Smith's leadership.
The Outcome Measure's Toolbox update project continues, led by Judy Scopes who volunteered to take the project on at the 2012 AGM.

Informal feedback, from the membership, about the 2012 collaborative conference with ISPO UK and BAPO appears that the joint conference was well received. Thanks to Mary Jane Cole and Julia Earle for their input in the planning process to ensure that BACPAR members got lots out of it. The 2012 BACPAR AGM minutes are available to members on the BACPAR website; http://bacpar.csp.org.uk/documents/bacpar-agm-2012-minutes. One of the items agreed within the AGM was that BACPAR would continue to buy articles from SAGE through 2013, to support members' CPD. We know that members are looking at the article but it would be great if comments would be added about them; changes in practice, the outcomes of discussions in regional meetings etc.

So, let's see what our 20th anniversary year brings for BACPAR and its membership. Keep talking to the committee through your regional representatives and by engaging in discussions on the BACPAR website and on the iCSP amputee rehabilitation site.

As ever thanks to the Flutes for pulling this journal together and those who have contributed to it.
See you in November in Wolverhampton.

Louise Tisdale - BACPAR Chair 2012

Editorial

Here I am once again wondering quite why I got re-elected to do this job, though this time my lovely husband has made it so easy I only have to click buttons and it puts the text in the right font and places photos for me without making them look scary and out of focus! So thank you Chair for reminding me I am doing it as I love BACPAR, and for her continuing support, it is much appreciated!

I still don't make it look visually pretty enough, but then that's what he does and he does it so well!
I am sure anyone else with half an artistic eye would succeed, actually he does point out that I give up far too easily!! (why have a dog and bark yourself)...

Anyway, enough waffle! Thank you to all the contributors, this journal has not been difficult to put together because lots of people have produced lots of great stuff and I haven't had to chase authors which has been great. Though I have had promises for the next journal deadline 16th August 2013, you know who you are!

On reflection we have had a great summer of sport somewhat overshadowed with the sad revelations from South Africa. I have decided to print everything that was submitted some before and some after as we should be focussing on the sport as Richard Hirons points out in his article not the tragedy of this February. I hope many of you got to see some of the sport and found it inspiring, I know a lot of my patients did and it has given lots of people the chance to have a go, or even just think they could which I have found fantastic for motivation, we are building on it round here!

Here's hoping I don't have to edit myself out again… this four page thing is very annoying one of the steep learning curves I have encountered as Editor!

So next deadline 16th August, Get those articles in…who went to Hyderabad then….?

Sue

BACPAR, ISPO and BAPO Collaborative Conference - Sheffield 27th and 28th September 2012

So, the first joint ISPO, BACPAR, BAPO conference ever and ISPO's Ruby Anniversary – what would the 2 days hold? Hopefully new ideas, evidence behind practice, meeting up with colleagues, friends, meeting new colleagues and maybe a little drink or two with a bit of a knees up at the Ruby themed 40th anniversary dinner and dance.

The experience for me started on the Wednesday after work travelling up with our therapy team on the train to Sheffield. Our boss cheekily taking advantage of having us trapped on the train to do a little team work! After having our brains challenged on the journey, it was agreed that meeting up with friends for a quick drink at the Royal Sheffield Holiday Inn before bed would be a good idea. Well, what was meant to be a 5 minute walk between hotels, turned into around a 20 minute exploration as 4 therapists were convinced that they knew the way and couldn't possibly ask for directions!! I mean how hard could it be, the hotels were only across the road from one another! Much giggling later we found our way to the Royal Sheffield and had our well earnt drink. It was much easier and quicker on the way home now that we knew the way!

Thursday morning woke up to clear blue crisp skies and an air of anticipation for 2 packed days of conference. It started with a bit of a "bang" by Professor Geertzen talking about 'Amputee Guide to Sex'. This was an excellent presentation of a very important and often taboo topic, delivered with humour while still highlighting the importance of discussing sex with our patients and the earlier the better! Quite a challenge for us Brits!

Highlights for the rest of Thursday included Helen Scott's paper on predictors of limb fitting and limb use after trans femoral amputation. This highlighted the need to manage expectations, maybe consider calling clinics an Assessment clinic rather than a Prosthetic clinic and providing literature to patients to take away and read in their own time. If the patients then do progress onto prosthetics, how do we support limb fitted patients to continue to use their leg to try to reduce the number of trans femoral amputees who abandon their limbs? Well done Helen for winning a prize for her presentation!
An extremely useful look at evidence behind oedema management post operatively which is now a BACPAR guideline was presented by L Bouch and L Geer. This produced some interesting debate with some of our Dutch colleagues who advocated stump bandaging!

The session on Pain Management after lunch provoked some interesting discussions on the best way to manage pain. Standard or alternate approaches, Graded Motor Imagery, Botox and Acupuncture were all discussed. It certainly stimulated some ideas for our service and raised some questions as to how the rest of us are treating pain, especially Phantom Limb Pain. Maybe we need to do an audit?!

After tea, Diana Playford gave an excellent talk on Goal setting and challenging us all to consider how we goal set with patients and whether being SMART is totally necessary. The importance of taking the time to get to know your patients so that you can explore their knowledge, understanding, values, preferences and beliefs as well as their understanding of underlying problems. Developing empathy and trust, sharing information, communication – the role of the Keyworker. Never say "no you can't" as this will undermine your relationship with your patient, instead maybe say "the first step is….." Thought provoking!

At the end of a packed day, that unfortunately ran over considerably due to all the interesting discussions inspired by the talks we sped back to our hotels / rooms for a quick shower and tart up for the evening festivities. A touch of Ruby was required and an excellent dinner ensued with lots of dancing and laughter – it was great to see some of the Docs let their 'hair' down and give it their all on the dance floor! I can't wait to see some of the photos that were taken with the disposable cameras!

Friday had a more prosthetic focus. Highlights for me was the excellent review on microprocessor knees by Carolyn Hirons and how to go about choosing which knee is the most appropriate for which patient. I loved the comparison to different cars! Her presentation and summary is on the iCSP documents section and well worth a look!
This was followed with a wonderful insight by Richard Hirons into the prosthetic preparation that was required for our paralympians to be able to perform as successfully as they did. This was topped off with a 'chat' with Richard Whitehead and Scott Moorhouse. Truly inspiring! And boy was that gold medal heavy!

We were then brought back down to earth with a talk highlighting the true meaning of ISPO. Carson Harte's presentation "More Precious Than Gold" investigated the impact of prosthetic and orthotic rehabilitation that is provided by his team on the lives of people living with disability in the third world. This provided further inspiration.

We then had the opportunity to split into our professional groups and for BACPAR we had two excellent talks, one by Judith Partridge on cognitive issues in older vascular patients and how a major event such as surgery can trigger a 'cytokine storm'. This can then trigger any underlying cognitive issues. Simple things can help, such as ensuring patients receive electrolytes post operatively and that we can reduce risk factors for delirium. The other talk was by Amanda Thomas reviewing exercise physiology and response to exercise. This reviewed the physiology of the oxygen transport pathway and the oxygen cost of amputees versus 'normals'.

Overall an excellent, if somewhat exhausting, two days. Time management is always a challenge at these events, with some chairs much firmer than others. In addition to this, the use of tea breaks for AGM's reduced the opportunity to visit all the stands, posters and for networking. This is an area that would be good to consider for future events. It was however great to see so many people from the industry making the effort to attend to develop and reinforce their CPDs, especially with so many financial constraints and pressures from work.

So, Thank you ISPO, BAPO and BACPAR for a fantastic two days and I look forward to the next collaborative event!

Kate Lancaster

ISPO/BACPAR/BAPO National Conference 2012

The two days were organized very well by the ISPO board, with input from BACPAR about Physiotherapy related lectures. The location and venue was a good choice, with very friendly staff and hospitality throughout the two days. The food and refreshments were also a great improvement from last years beige fest!!

Lectures started with a controversial topic that kept the audience acutely engaged with Professor Jan Geertzen from the Netherlands with his talk titled 'Sexuality and Disability with a Focus on Amputation'. It was felt that it is the responsibility of the professional to 'break the conspiracy of silence'. There was some debate at who was the most appropriate person to have this discussion with the patient, and ended with the consensus that it would be different from patient to patient, and relate to a different professional dependent on the barrier to sexuality and sexual activity.

Dr Soori (Consultant in Rehabilitation Medicine, Roehampton) presented 'The Through Knee Amputation' and the debate of this being a viable level of amputation in PVD. Both positives and negative reasons were identified, however Dr Soori felt based on literature search findings and analysis of his own data, Through Knee Amputation offered an acceptable healing rate and satisfactory functional outcomes in patients with PVD.

Physiotherapy then took the stand with Kate Primett (Acting Clinical Specialist Physiotherapist, Royal free Hospital, London) feeding back their Patient Satisfaction Results of the Acute Amputee Rehabilitation Service they provide. The importance of recording such outcomes was highlighted due to the increasing proportion of provider income being related to patient experience.

Helen Scott (Specialist Physiotherapist, West Scotland Mobility and Rehabilitation Centre, and SPARG representative) presented a collaborative paper titled 'Predictors of limb fitting and limb use in a consecutive sample of patients after trans-femoral amputation'. 57 consecutive TF primary patients were included. These undertook the AMPnoPro, ACE-R, pre-morbid K levels, collection of demographics, etiology, pain and co-morbidities. 44 patients were provided with a prosthesis. Results showed 6 patients were lost to follow up, and of the 38 patients seen at follow up, 68% reported using their prosthesis, and 42% had abandoned limb use. The team found that Higher Physical Status (higher K levels and AMPNoPro scores) and better cognitive performance (MMSE) were predictive of continued limb use.

Physiotherapy lectures then continued with Fiona Scott (Senior Physiotherapist, Western Infirmary, Glasgow) presenting 'Patients with peripheral arterial disease: What common characteristics were found between inpatient hospital stay and final outcome post amputation'. It was noted that from the SPARG database, length of inpatient stay for primary amputees were very lengthy in comparison to those in other parts of the UK. This was identified as being due to Geographical location, with outpatient facilities so sparse and non accessible to patients in remote areas. It was felt that patients were therefore kept as inpatients for their initial rehab period. Data also suggested that females stayed longer in hospital, and those who were being limb fitted. Those not being limb fitted were discharged sooner. This was felt to be related to not needing the same level of rehabilitation.

The eagerly awaited 'Guidance for the multi disciplinary team on the management of post operative residuum oedema in lower amputees' completed by the last class of the Post Grad Diploma in Amputee Rehabilitation at Bradford University was unveiled (Liz Bouch, Lizzie Geer, Katie Burns, Matthew Fuller an d Anna Rose). This was appreciated by the audience, and thanks given for all their hard work and commitment to the project.

Following on from these guidelines was the Blatchford Sponsored Lecture by Professor Harmen Van Der Linde from the Netherlands who summarized their Guidelines in amputee management in the Netherlands. This was very similar to those guidelines we have in the UK and had no real surprises there.

Finally of great interest as always was a summary of both GMI by Tim Beames, and Acupuncture by Jennie Longbottom for the amputee patient with phantom limb pain/sensation.

Further lectures followed throughout the day, including Tara Sims (PHD student) exploring the views of children and parents regarding the design of their prosthesis; Chantel Ostler (Specialist Physiotherapist) discussing changes made to Primary Clinics at Portsmouth DSC and the new DVDs used to inform patients of pathways; Goal Setting by Dr Diane Playford discussing relevance and myths around the importance of goal setting and how this can be tailored to the individual. Jennifer Fulton (Clinical Specialist Physiotherapist, Stanmore DSC) then presented a case study of a child with Ewings Sarcoma of the Femur and Treatment and MDT Management.

Interesting lectures followed over the two days, with many Blatchford presentations ranging from the Launch of the Avalon

Hydraulic Ankle for K2 users to Sweat Management in Prosthetic sockets and the use of perforated liners. A great over view of the difference of Micro-processor knees and clinical reasoning behind which should be issued was presented by Toby Carlsson (Prosthetist) and Carolyn Hirons (Clinical Specialist Physiotherapist) from PACE.

With much excitement Richard Hirons (Prosthetist, Ossur) introduced our paralympians to the audience discussing Ossurs involvement with Team GB athletes and the dynamic problem solving approach with regards to the use of prosthetics. Richard Whitehead, Gold medalist in T42 200m and Scott Moorhouse, 7th Place in F42 Javelin spoke about their Paralympics experience, the use of prosthetics and how these can aid or hinder their performance. The importance of spending time with their prosthetist on the track at training sessions and the close collaboration between the athlete, prosthetist and trainer/coach to reason which limitations are due to the athlete or prosthesis was highlighted as vital to their sporting success. Richard and Scott kindly did a meet and great session following this, which was appreciated by all those who attended the conference.

Richard Whitehead
Gold, Male T42 200m

Scott Moorhouse
7th Position, Male F42 Javelin

Dr Meulenbelt (Netherlands) continued lectures with discussion about Skin Problems of the Stump in lower limb amputees, followed by a review of Mortality Predictors from Dr Singh (Sheffield).
The two day event finished with two lectures organized by BACPAR.

Lecture 1 was 'Cognitive Issues in Older Vascular Patients' by Judith Partridge (Guys & St Thomas' Trust). This insightful presentation discussed Post Operative Delirium and Vascular Dementia common in Vascular elderly patients. It looked at indications, diagnosis and strategies to limit effects.

Lecture 2 titled 'Exercise Physiology and the Response to Exercise in Amputees' by Amanda Thomas (Physiotherapist, The Royal London Hospital) revisited Energy requirements, Work completed and O2 consumption. It was discussed that O2 consumption was directly related to work done/physical effort. The relationship between increased speed and increased oxygen consumption was also discussed. Studies were presented showing the amputee population had a great O2 consumption during gait than the control. It also showed that elderly amputees had a greater energy requirement to walk their chosen walking speed that the younger amputee population. Additionally those with less disabling levels of amputation chose a faster walking speed than others ie: TTA Vs TFA. Research also demonstrated that amputees slow their walking speed through time, to maintain the same amount of Oxygen consumption. Therefore their energy requirements do not increase. Further discussed was that patients using elbow crutches and nil prosthesis to mobilize had a greater energy cost than those mobilizing with a prosthesis. Finally, Bilateral Amputees showed a much higher heart rate during gait together with a linear relationship to increased oxygen consumption than the control. The control showing the same relationship but at a much lower level.

In summary this year's joint ISPO/BACPAR/BAPO conference seemed a success. The venue was good, there was a great night of partying (always a bonus) and networking opportunities. The lectures were a good balance of medical, prosthetic and rehabilitation subject matters with enough to keep all professions entertained. I believe everyone went home taking something new back to their own practice from the conference. The general theme of the two days however, was the need for more randomized controlled, large research studies and the problem with how you could complete RCTs in this patient population. Something for everyone to think about…

Thankyou to the ISPO UK Board, BACPAR Exec and BAPO for making the event such a success!

Jodie Georgiou - Specialist Prosthetic Physiotherapist

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Quiet reflection on the Summer of 2012

Today, writing about the Paralympic Games seems a little uncomfortable. Whether recent news changes your opinion of last summer is a matter for you to decide. But you'll have your own opinions on the Paralympic Games. Were you there, did you see any of it on TV, or know anyone who was competing? Either way, I'd say we all had an involvement, if only by association. Friends, family, neighbours were now all asking questions. Everyone had an opinion. Our profession was in the spotlight and we had to represent that well and appropriately, specifically to those we serve – our amputee population.

At Össur we've been lucky enough to work with many of the Paralympians over the past years. Whether it's the Nationals, World Champs or Paralympics, these athletes, for this is what they are, are focussed individuals operating on a schedule managed by national coaching staff and support networks. I say this not to undermine the relevance of the London Paralympic Games, but to add context that in some respects this was just one of many scheduled events on the sporting. But without doubt, the 2012 Games was the 'big one' so to speak, personally and professionally for the athletes. But there was also a disproportionate and rapidly escalating media interest. I lost count of how many interviews I took prior to and during the Games last summer, but the theme was constant. 'Was it fair?' Throughout this entire period our objective was clear; to promote the athletes.

I was at a debating event after the Games, discussing the impact of technology in sport, essentially defending the use of 'blades' and the assumed unfair advantage they offer! As armchair critics, and therefore experts, we're all too happy to shout at the TV chanting 'unfair'. The speaker I followed gave good biomechanical reasoning on why performance enhancing prosthetics created a sport that was inherently unfair. I seized on a comment he made which went something like "…it's clear that once up to speed, Oscar Pistorius has an unfair advantage…" And so it went on. In my reply, I took that notion of 'once up to speed' and worked back. It goes something like this: Take the 100m Paralympic final in which we saw Jonnie Peacock become a household name. Picture him now, 'up to speed', 40m to the finish line! How did he get here, this moment on this day? It's a long journey…longer than the 60m he's just run.

Consensus among coaching staff is that there are up to 7 recognised stages of a track sprint race. Reaction time, block exit, drive phase, transition, maximum speed and deceleration. There are area's here where a prosthesis can be optimised specifically. Optimisation for the drive phase, may well compromise maximum speed. The anatomical foot/ankle behaves and adapts for continuous optimisation through-out the entire race period. A passive prosthetic spring does not. Jonnie, and indeed all the sprint athletes will have run using a compromised set up. On the start line, 80,000 expectant fans are cheering his name in the Olympic Stadium. Jonnie has to ask for quiet. The pressure is enormous. He broke the world 100m record a few weeks before the Games, a record that had stood since 2009. The inside story was that Jonnie was tipped to run a 10.6 in the final, such was his form. We all held our breath.

The weather is good, perfect almost. Little wind and dry. Bilateral athletes like Rich Whitehead, can struggle with adverse weather conditions. Wind and rain can have a huge effect on their

performance. Keeping in lane is almost a big a challenge as any. Fear of slipping on a wet surface and being blown of course…not something an able bodied athlete has to contend with as much. Is that fair or ever discussed by the researchers?

Before the start, you may have noticed Jonnie and some of the other athletes sat by their start tower, bottle of drinking water at their side and a towel. The water is not for drinking. Jonnie has his prosthesis off, cooling his leg with the water, drying out his liner, refitting his socket…seconds before a race that will change his life forever. It's rare you ever see an able bodied runner even re-tying a shoe lace. As a prosthetist, you know this is a risky strategy, but needs must. Perspiration and heat…a situation that will not last another 11 seconds. He dons his socket, rolls up his sleeve and you wonder if this is one of those 'right first time' occasions that doesn't require a second stab.

One of the reasons he is hot and needs to cool his leg, is that he's just come from the call room, an emotionally charged area where the athletes get one last chance to look each other in the eye prior to entering the arena. Jonnie will have walked there, carrying his kit bag, a bag that contains not only shoes, but his regular prosthesis from the warm up track. A Paralympians kit bag differs from other athletes, in that they are much bigger, heavier, almost a mini prosthetic workshop. Dressings, liners, prostheses…things able bodied runners don't have to contend with. Carrying your kit bag while wearing your competition prosthesis is a challenge in itself. It's not exactly news headlines, but neither is it ideal preparation. Do able bodied athletes experience these circumstances? No they don't. Is that fair?

I once heard Marc Woods, former Paralympic swimmer offering Jonnie and other athletes some advice about what would be their first Olympics. He warned of spending too long on your feet. 'It's your first games, you'll be excited and want to explore. You'll be walking around more than normal, have greater distances to cover in an unfamiliar environment, and it's likely your legs will get sore. Be careful', he said.

And this is just the day of the final. A full schedule of qualification rounds leaves the athletes exhausted. It's challenging to drill simulations for big events. Paralympic meetings are not as prolific in the race calendar as able bodies events, so there is a shortfall of competition experience here…unlike the able bodied athletes.

If we follow the 'once up to speed' journey further back, then we need to look at training. What gets the athlete to this point, the finals, the right to compete on the worlds greatest stage? They must qualify, achieve a target time to gain selection. This doesn't happen by strapping on a set of blades, this is hard fought, earned and ultimately a place rightfully won. Each athlete follows a training schedule. Track speed work, strength and conditioning sessions, recovery, nutrition advice and so on. Pressing weights in the gym wearing a prosthesis often requires adaptation to technique or the prosthesis used. Track sessions require constant attention to the prosthesis, swapping prostheses after warm ups and visa-versa. Strength and conditioning sessions working on core stability, minimising muscular and postural asymmetries are more appropriate for athletes who wear prostheses. There are more areas to address. And ultimately there are periods of prosthetic intervention, socket fit, alignment. What our period of working with elite athletes has taught us, is that this aspect is the very least of their preparation.

With about a year to go before the Games, we did ramp up our activity with the athletes looking at their prosthetic needs. We didn't particularly get involved with anything revolutionary or controversial. We just spent time with them, making the same fine detail adjustments to their set up as anyone would who had the time to do so. Time and attention to detail was our biggest luxury.

Accelerate the programme from its concept, a talent spotting day or a keen club runner who progresses through the sport to this moment on the 100m track in the London Games and review what it really takes for an amputee runner 'to get up to speed'. Soon you realise it's more than a set of running blades. And I'm convinced in many respects it's probably more than an equivalent able bodied athlete has to endure. And this is why during the media frenzy we were confidently able to promote the athletes for their ability, not the prosthetics they were wearing.

There were issues surrounding the use of blades, their changing lengths and some controversial comments from Oscar Pistorius after his first defeat. He was right, though the media jumped on his accusations of 'unfair' as somewhat ironic. But this is sport. What makes sport good for us to watch and be engaged with is if it is competitive and fair. To run in abled bodied events Oscar has the 'spec' of this prostheses locked down. Yet a rule in Paralympic sport states only a maximum height under which the athlete must pass for bilateral users, allowing some variation. Some choose to run a reduced height for the shorter events, potentially faster accelerating, or maximum allowable length for the longer distances, allowing time for them to unwind and use improved stride lengths to an advantage. All Oscar was saying is that he is always the same height, choosing not to play that game, and that he's never sure what 'specification' his competitors will be running for this race or that…and that's not fair…or indeed good sport.

Of course, this all seems very distant now. News from South Africa is not about the sport. In isolation and in the context of the Paralympic movement, it is the sport that we must remember and continue to champion.

In our presentations and interviews during that period, I was always keen to relate all of this the regular amputee. "Aren't you just raising the expectations of our patients…we've got amputees who can barely get out of chair yet want to climb Kilimanjaro " I was constantly challenged. 'Yes', I would reply defiantly. Sport and a competitive spirit is a great motivator and can be a useful rehabilitation tool. One man's Kilimanjaro is another man's top of the stairs. Our job is not to supress the achievements of these athletes, but acknowledge their greatness in what they have done, how they inspired us all and take a little of that into our own environments. Above all we should still feel proud that the summer of 2012 we all had a part to play, whether directly or simply by association of the good work we do with people who utilise our services.

Richard Hirons Prosthetist - Össur

Paralympics

Having been involved in Paralympic athletics & amputee sprinting for several years I felt like a kid approaching the sweetie shop as I walked towards the stadium. All the superlatives about the venue, the atmosphere, the gamesmakers and even the weather are all true. And I was there... on the 2 best nights of the paralympic athletics ever.

Sunday, 2nd September saw Oscar Pistorius beaten for the first time in 8 years by the Brazilian Alan Oliveira in the 200m. Oscar is a superb athlete and a great ambassador for paralympic sport and eventually he had to get beaten. I think his outburst was due to shock mostly and he did apologise later. (The Brazilian's blades would have been checked for height in the call up room along with everyone else's).

I understood why Oscar wanted to compete in the Olympics. It was personal; he had no competition in the Paralympics and therefore couldn't push himself to improve his personal performance. It may have given the public (who lacked the understanding of the issues) the idea that Paralympic sport is second best to Olympic sport but London 2012 has shown that not to be the case. And Oscar now has some competition on his own turf and that's brilliant.

So much competition in fact that the International Paralympic Committee have recently announced that they are separating the T43 and T44 classes (bilateral and single trans-tibial amputees) – they will no longer have to compete together because there are now enough competitors for separate events.

The following Thursday evening was the time for Jonnie Peacock to step into the limelight. Jonnie was spotted at a ParalympicsGB talent identification day and fast tracked into a training programme when he was 15. He is a huge credit to his own ability, the skill of his coaches and the foresight and belief of UKAthletics and ParalympicsGB. So much potential; and he is British. And I was there. (In tears, just before I got a hug). With the attitudes, funding and opportunities for amputees to get involved in sport the future looks rosy for Paralympic amputee sport; at all levels and in all sorts of sports.

So be on the lookout; your next patient could become a paralympian if they have the talent, skill, determination and drive. To find out more go to www.parasport.org.uk to find out what is available in your local area.

Penny Broomhead

Paralympics 2012

Sometimes I wonder why I'm a physiotherapist. Not being a very sporty person myself I eschew watching sport on television so as the London 2012 event drew closer I determined to avoid it as much as possible. In fact if I could leave the country on a two month holiday I would! But at the end of July a strange transformation occurred, one I don't mind admitting was totally out of character and unexpected for me, for once the games started I positively relished watching the coverage every evening and was keen to get the TV on in anticipation. Perhaps it was that feel-good factor, the excitement of our fellow citizens winning medals for this country, the sense of belonging, of patriotism, of pride. It was then that we decided we had to get tickets for the Paralympics...

As a specialist physiotherapist working with patients following amputation I was very excited to be at the evening session on Wednesday 7th September in the athletics arena. What an amazing spectacle! – so many people in one space with such an uplifting atmosphere; people from all nations but everyone hopeful, everyone eager for the same results, a real sense of camaraderie. Union flags were hung all over and proudly displayed over our seats, over our knees, and round

our shoulders. Within the stadium the track seemed unexpectedly near, a more intimate feel than on television. The huge display screens and background music added to the sense of drama and expectation. And with the start of the sessions came the noise – loud cheering, shouting, clapping, and whistling when the athletes emerged. The sport for the night was varied – track events including wheelchair racing, those with cerebral palsy running and long jumping, those with amputation running and throwing javelin, and visually impaired also throwing javelin, running and shot putting. Seats near the track event finish line, and the magnificent flame nearby to the right added to our enjoyment. The sun was shining down into the stadium across on the opposite side, and it was a beautiful balmy evening.

So up step a line of those with visual impairment, ready to run the men's 800m. Our British contender, David Devine, all fired up…. the gun went and they were off! How could they make it look apparently so easy? Racing with confidence and speed despite their impairments. And the crowd were off too, with a huge level of excitement they reached a crescendo; it seemed everyone in the stadium was shouting, screaming, for David Devine. As they came around the last bend and into the home straight it was touch and go whether David would get a medal – he was back in 4th place and it wasn't looking promising. Everyone around us leapt up out of their seats. The exhilaration and suspense was tangible. Could he possibly do it? "Come on David! Come on David!" the crowd roared, louder, louder, even louder as he gradually pulled forward to the line and crossed it neck and neck with the Cuban athlete. Had he got 3rd place? What was the result? Was it another medal for GB? Oh, the agonising wait of a few minutes but what felt like much longer to get the final verdict – yes! He'd done it! A bronze for Great Britain – hooray!

Another event included Bethany Woodward, who came in 0.39 of a second behind the gold medallist from Namibia to achieve her well-deserved silver medal. Bethany has cerebral palsy; despite this her running style looked very fluid, clearly as a result of dedication and hard work. It gave a great sense of pride to me and the rest of the British crowd to watch her come out later onto the winner's podium to raucous cheers of adoration. There was no doubt she will be back in future Paralympics to win further medals for team GB. Of course it wasn't all about home-grown talent - in fact throughout the evening the crowd were very generous to all the athletes with a sense of respect shown to those competing and to their national anthems, which were varied and not always very melodic!

The highlight for me was seeing two of my favourite athletes running in their heats – Jonnie Peacock and Oscar Pistorius, who both won their races. These were in preparation for the 100m final race the following day, which was won by Jonnie Peacock. To see these young men with lower limb amputations sprinting was amazing. It could have felt like a busman's holiday but I would not have wanted to be anywhere else that night. It was magical to see all these athletes achieving so much. There was an enormous feeling of inspiration as well as a good deal of embarrassment of my own fitness level, a whole world away from theirs, these people who have overcome so much adversity and disability but who have not let it stop them in any way from being at the top of their game.

The final excitement came with the men's 4x100m relay which was full of draw and anticipation, although team GB did not feature in this. South Africa was participating and I knew that I'd get to see Oscar Pistorius run again – what a treat! But also to see another of South Africa's team, the Saminator – Samkelo Radebe, a law student with upper limb amputation in class T45. They ran a world record and celebrated in style with plenty of flag waving and a lap of the stadium. Stopping near to where we were sitting gave the ideal opportunity to see them closer through our binoculars, and to try getting some snap shots of the 'fab four' – a little blurred due to my shaking with excitement!

And so it was over – but I wanted more... I could have happily gone along again the next night and all the nights following until the closing ceremony! We left the stadium, uplifted but strangely calm. A huge mass of people all making their way home, we walked back to the railway station, quietly chatting with a tranquil sense of mood. When we got to the station the organisation was superb, the best of British. We were filed and segregated appropriate to our destinations and we waited only a short time to get on a train back to central London despite the large numbers travelling. And so we got home, happy and content from such a memorable occasion. I never thought I'd wish it but please bring the Olympics and Paralympics back to Britain again!

Vicky Pursey

After becoming an above knee amputee in 2010, I joined Amputees in Action which is an agency that provides work in the tv and media industry, and also provides casualties for MOD exercises.

I did the odd job for them, but in January this year I received an intriguing e mail asking for some amputees to audition to perform in the Paralympic opening ceremony. The only clue we had was that it would be working at height. Following a harness audition at Three Mills TV Studios in London, where I was lifted up to about 7 metres and did some somersaults etc, I was thrilled to be offered a role to be one of 40 disabled people to be specially trained as circus performers for 29th August 2012.

My training began in April with 8 weeks of intensive training at Circus Space in Shoreditch, London. This meant 5 hours a day of boot camp style fitness conditioning, trapeze and rope classes, performance coaching and yoga to help keep us supple. All of this was kept top secret so the press didn't get any hints about what was coming in the ceremony. There was blood, sweat and some tears, but no major injuries despite our bodies being pushed to the limit.

After a couple of small performances we were ready to launch into rehearsals back at Three Mills Studios for a further 8 weeks We trained in harness performing at heights up to 7 metres, but nothing could prepare me for the shock of the full routine height of 25 metres at the beautiful Olympic stadium.

In the Opening Ceremony titled "Enlightenment" I performed in a harness under a giant pink umbrella at around 25 metres, and I also did a trapeze routine to a beautiful song called 'Bird Girl' at around 25 metres also. The experience was quite exhilarating, seeing and hearing 80,000 people and feeling their excitement and overwhelming support. After my first routine I was in tears and quite overwhelmed at just being there, knowing how lucky I was and what a privilege this whole journey had been. I had rediscovered my determination, challenged my own fears, and worked beyond the limits I had labelled myself with following my amputation.

I had already been approached about performing a stunt in the Closing ceremony on 9th September 2012 titled the "Festival of Flame". Initially I only knew it was working at much greater heights than I was used to, but when they showed me a clip of what I would be doing I immediately said yes, when do we start!

So, there would be a wire from the ground to the very top of the stadium. On the wire would be a motorbike and under the motorbike would be a trapeze. I had only one week to train at heights of up to 40 metres, performing again on the trapeze and travelling at speed up the high wire. The thrill was amazing and each time I did it I had to pinch myself that not only had I been offered this unique opportunity, but that I'd had the courage to take it.

This summer I have had the privilege of working with some very inspirational people. Among my circus troupe were deaf, blind, amputees, some paralysed, with cerebral palsy and autism. We all had one thing in common. We all committed to this journey and we never gave up. It was hard, it hurt, we ached, at times we were scared and at times we cried with the sheer joy of succeeding. It's taught me fears can be overcome and boundaries are meant to be pushed, no matter what disability you're struggling to overcome. It's taught me to say yes and try something new.

Lyndsay Adams

Microprocessor-Controlled Prosthetic Knees

A Review of the Literature

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Introduction

Microprocessor control of prosthetic knees (MPCK) helps better replicate normal knee function, providing trans-femoral amputees (TFAs) benefits compared to non-microprocessor knees. A literature review on MPCKs was performed to: 1) assess the justifications for their prescription, 2) compare different MPCKs and 3) assess the effect of (2) on prescription criteria.

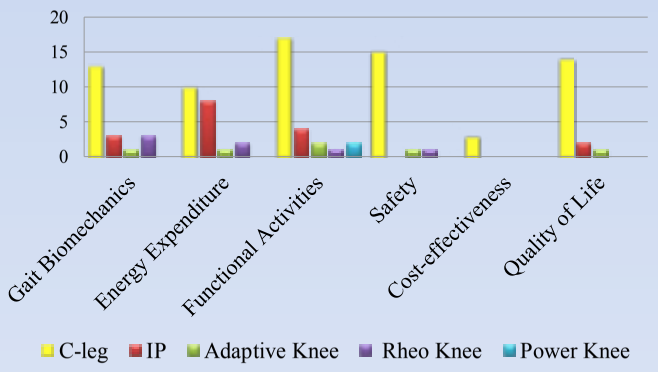
Methods

A literature search was performed. 6 categories were deemed pertinent to TFA rehabilitation: gait biomechanics, energy expenditure, functional activities, safety, cost-effectiveness and quality of life (QoL). Studies were grouped into one or more of these categories based on the issues addressed.

Results

- 47 studies were reviewed.
- There were 9 Level 1 studies, 28 Level 2 studies and 10 level 3 studies [1].
- The C-leg was the most widely studied MPCK.
- 3 studies made inter-MPCK comparisons.
- Most studies were performed on otherwise healthy, unilateral TFAs. 2 case studies investigated bilateral TFAs.
- The bar chart shows the distribution of studies by category and MPCK.

Studies by category and MPCK



From left to right: Smart IP, Orion Knee, C-leg, C-leg Compact, Rheo Knee, Power Knee

Discussion

- MPCKs improve gait efficiency and energy expenditure but do little to reduce sound side overuse [2].
- All studies investigating mobility, stair/slope ambulation, functional level or safety-related measures noted statistically and clinically significant improvements [3, 4].
- All 3 economic studies found the C-leg cost-effective from healthcare and social viewpoints [5].
- MPCKs significantly improved QoL for most TFAs [3, 4].
- MPCKs benefit both K3-4 and K2 unilateral TFAs. K2 TFAs, who are not normally considered MPCK candidates, may suffer underprescription [3, 4].
- Both case studies on bilaterals showed little benefit in improving energy expenditure, safety and QoL [6].
- A lack of inter-MPCK studies and the inconsistency of results makes it difficult to assess inter-MPCK performance [2].

Conclusion

MPCKs provide functional benefits for unilateral TFAs and appear to be cost-effective, justifying their prescription. Clinicians should consider prescribing them more often. More research on different TFA subpopulations and inter-MPCK comparisons are needed.

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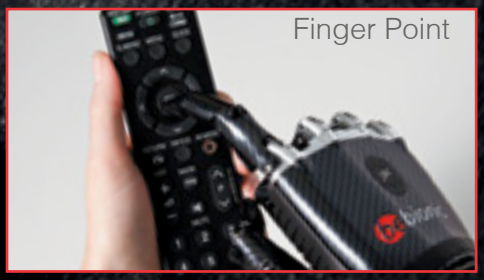

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Results from a Survey of Health Professionals on which Outcome Measures are currently being used in Prosthetic Rehabilitation

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Introduction

Outcome measures (OMs) are often described in the literature as a useful measure of progress when utilised during rehabilitation. By measuring progress, treatment programmes can be more easily tailored to the individual. OM's can also be used to evaluate the effect of a specific intervention or prosthetic component. As the outcome of lower limb prosthetic rehabilitation depends on many factors however, there is no single OM that is considered to be the Gold Standard.

In a search of the literature over the last 10 years, it was found that over 30 OMs have been linked with adult lower limb amputees. Many had been specifically designed for use with this population, while others were general measures. BACPAR (The British Association of Chartered Physiotherapists in Amputee Rehabilitation) produced an outcome measures toolbox[1], recommending measures which are valid, reliable and responsive to change as well as being practical to use, to help clinicians with this wide range of choice.

Aim

The aim of this survey, which is part of a PhD looking at OMs in the amputee population, was to establish a database of those OMs regularly being used by Allied Health Professionals (AHPs) i.e. Physiotherapists, Prosthetists and Occupational Therapists during lower limb prosthetic rehabilitation.

Methods

A postal survey, listing the most common OMs published over the last 10 years, was distributed to the Allied Health Professionals via Professional Special Interest Groups, through local Prosthetic Centres in Scotland and by personal contacts.

The respondents were asked to indicate which OMs they used regularly with:

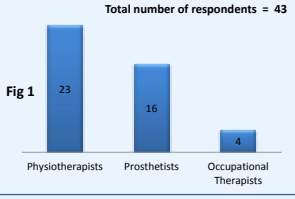
a) low level activity amputees
b) high level activity amputees as defined by their k Levels

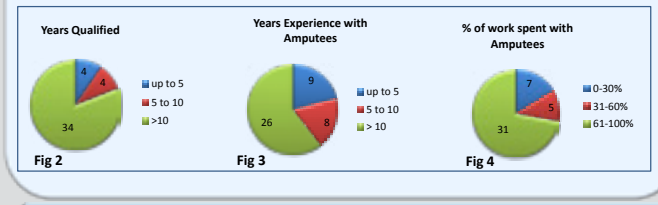
And, at what stage in the care pathway they used these OM's,

i. primary limb users
ii. established limb users (i.e. approximately > 1 year post limb delivery).

Results: Respondents

Figure 1 shows the number of respondents by professional groups and Figures 2-4 illustrate their experience and work ratios



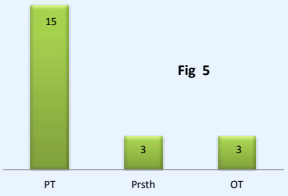


Results: Outcome measures

Thirty two of the 43 respondents indicated they used OMs regularly, by Professional Group this was:

- 23/23 Physiotherapists,
- 6/16 Prosthetists,
- 3/4 Occupational Therapists

The number of OMs ticked in each Professional Group is shown in Figure 5.



Of the 30 OMs listed, 19 were ticked indicating the respondents used them regularly. The five most popular were:

1. SIGAM Mobility Grades (60% of the thirty two who used OMs)
2. Timed up and go (TUAG) (47%)
3. Timed walk test (41%)
4. Locomotor Capabilities Index - both original & modified (34%)
5. Socket Comfort Score (SCS) (34%)

❖ All were used by Physiotherapists, all except LCI-5 by Prosthetists. None of the top 5 were used by Occupational Therapists.

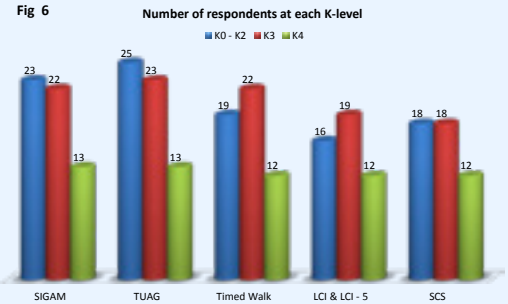


Figure 6 illustrates at which activity level the OMs were used. These figures represent both primary and established users at each level.

A further 14 OMs were noted in addition to those on the list. Some were the respondents own questionnaires while others were non-amputee specific measures.

Various reasons were also given for discontinuing the use of OMs, including 2 of the top 5. Reasons mostly given were:

- Time taken to complete the OM
- Lack of sensitivity and/or a ceiling effect
- Lack of relevance to functional progress

Discussion

➢ The variety of OMs used indicates a lack of consensus across all AHPs.

➢ The LCI-5 and TUAG from the BACPAR Toolbox appear to be in regular use.

➢ Comments about the lack of sensitivity and relevance to functional progress indicate the need to analyse the clinical responsiveness and ceiling effects of some of the measures currently being used.

References:

[1] **BACPAR Toolbox of Outcome Measures, Version 1 Feb 2010**

Acknowledgments: We would like to thank the Scottish SOTA Prosthetic Group for funding part of this project, Physiotherapy & Prosthetic colleagues from NHS Lothian who helped with the design of the survey and all AHPs who completed the survey.

Guidance for the multi disciplinary team on the management of post-operative residuum oedema in lower limb amputees

In 2012, multi-disciplinary team guidance for the control of post operative oedema in lower limb amputees was published. This guidance was developed by practising physiotherapists and occupational therapists. It arises from work originally completed and supported academically as part of a Post graduate certificate from Bradford University. The guidance has been endorsed by the British Association of Chartered Physiotherapists in Amputee Rehabilitation (BACPAR). BACPAR is a professional network and a Chartered Society of Physiotherapy (CSP) affiliated organisation.

Evidence based medicine was originally defined by Sackett et al., (1996). It has been refined and rebranded Evidence Based Practice (EBP) for Allied Health professionals, who aim to utilise research based evidence to inform and improve clinical practice (Andreysek et al., 2011). It integrates clinical judgement, an understanding of individual patient differences and incorporates both qualitative and quantitative research evidence (Bithel, 2000).

EBP is accepted as necessary by thinkers, policy makers and clinicians despite some healthy and inevitable concerns by the latter (Griffiths, 2005).

EBP relies on the ability of clinicians to utilise evidence (Geil, 2009), however Clinicians can be overwhelmed by the amount of literature produced each year (Davidoff et al., 1995). There is a need to acknowledge that the depth, quality and scientific rigor of research aimed at supporting EBP should not be at the expense of understanding, or the ability to consume this volume by those implementing it (Lyon, 2006). Most healthcare clinicians would agree that a mismatch occurs between the amount of published research and one's ability to individually appraise it all. This has been identified as a major barrier to integration of evidence into practice (Straus et al., 2009).

Guidelines aim to form recommendations for clinical practice based on the best available evidence and their use

in improving patient care is increasing (Cluzeau et al., 2003). They are designed to assist clinicians to evaluate and implement the increasing amount of evidence and opinion published. If they are well developed and critically assembled they allow a digestible and useable evidence base to be utilised and incorporated into clinical practice, (SIGN, 2008).

For guidelines to fulfil these criteria they should be developed in a methodologically sound way via a systematic review of the literature, with evidence categorised depending on its quality (Barker and Burns, 2001). More stringently controlled trials are favoured over case studies and expert opinion in this system.

The ultimate aim of our work was; the presentation of current evidence into the management of post operative residuum oedema, development of a usable guideline and to disseminate this resource to guide application of best practice to assist decision making. Therefore bridging an often perceived knowledge to action gap (Straus et al., 2009).

Oedema occurs post operatively following lower limb amputation surgery due to the trauma and handling of tissues during surgery (Nawijn et al, 2005; Airaksinen et al, 1988; Varghese et al 1981). In normal tissues, volume is controlled by the complex interplay of fluid transfer across capillary membranes and lymphatic re-absorption. Usually equilibrium is maintained unless pathology or trauma (Airaksinen et al., 1988), such as amputation, occurs. This swelling remains due to post amputation inactivity and a lack of muscle tone in the residuum (Varghese et al., 1981). The presence of post-operative oedema can cause the following complications to a patient's rehabilitation; delayed healing time (Nawjin et al., 2005; Wong et al., 2000), pain (Blake et al., 2007; Airaksinen et al., 1988), delayed mobility (Blake et al., 2007; Condie et al., 1996), increased time to start of prosthetic phase of rehabilitation (Van Velsen et al., 2005; Vigier et al., 1999; Wong et al., 2000), increase in length of hospital stay (Vigier et al., 1999), poor stump shaping and maturation affecting prosthetic fit (Louie et al., 2010).

Oedema control methods should ideally be safe, easy to apply, remain secure, prevent skin breakdown, provide limb shrinkage, shaping, be painless and cost effective (Isherwood et al, 1975; Janchai et al, 2008).

Evidence was gathered from a thorough review of available literature in November 2010 using a search of multiple databases. Search terms and inclusion criteria can be found in the guideline (Bouch et al., 2012). One hundred and seventeen articles were identified by the literature search, 73 were excluded by abstract. Of the remaining 44 articles, 39 were appraised using the Scottish Intercollegiate Guidelines Network (SIGN, 2008) methodology checklists, by two members of the guideline development group, as recommended by the National Institute of Health and Clinical Excellence (NICE) (2009) and assigned a level of evidence. The remaining 5 articles could not be appraised due to poor methodological design.

Robust evidence was found to support the use of rigid dressings, Pneumatic Post Amputation Mobility Aid (PPAM aid), compression socks, wheelchair stump boards and to discourage the use of elastic bandage wrapping.

Rigid dressings or semi rigid dressings are used for trans-tibial residuums to prevent formation of oedema. They can be made of varying materials, including fibreglass, Plaster of Paris or a disposable material vacuum formed around the leg made by Össur® and can be removable or non-removable. The technique to apply them requires specialist skills and materials and costs vary. They can be applied immediately post-operatively and depending on material stay on up to day 14 post-operatively only being removed for wound inspection. The best level of evidence, level 'B' (SIGN, 2008) was found for rigid dressings. Benefits found included reduced time to healing, reduced oedema, reduced time to prosthetic casting and reduced incidence of fixed flexion deformity at the knee. The dressing can also provide protection to the stump in the case of trauma for example if the patient falls.

Other forms of oedema control include the PPAM aid, compression socks and wheelchair stump boards, all received a level of evidence 'D' (SIGN, 2008) after review of the articles.

The PPAM aid is routinely used by physiotherapists from day 5 post-operatively to enable the patient to walk early after amputation. The PPAM aid can be used at all levels of amputation but only partially weight bearing and not bilaterally. Benefits include a reduction of oedema and the opportunity to assess the patient for prosthetic limb potential (Dawson et al., 2008)

Compression socks are a conical graduated garment which can be used within 10 days post-operatively but there was no literature to aid in decision making in terms of a regime for wear. The evidence reports a reduction in oedema, reduction in time to casting, they are easy to don and doff, require no specialist training and the patient can often do this independently.

Wheelchair stump boards reduce the formation of dependent oedema and fixed flexion deformities at the knee although there was little evidence for how long the patient should continue to use the board but consensus of the group recommend the use of stump boards whenever the patient is in the wheelchair.

Elastic bandage wrapping consists of a technique to bandage the limb however the available evidence is against its use as the pressure distribution can vary.

Based on the best current available evidence rigid/semi rigid dressings should be used when expertise, time and resources allow; the benefits are well documented in the literature. The PPAM aid, compression socks and stump boards have been shown to have some evidence base for oedema control and may be used in addition or in the absence of rigid dressings dependant on clinical judgement. However, these modalities are not necessarily primarily intended for use for oedema control. Their advantages include preparation for prosthetic rehabilitation, reduction in flexion deformities and maintenance/improvement in muscle tone and are important components of amputee rehabilitation. Compression socks and the PPAM aid are the only tools available for trans-femoral amputees.

The guidance presents the current evidence and is intended as a resource to guide application of best practice and to assist decision making. It should be used to support clinical judgement. Further research is needed to substantiate the guideline with regards to the timing and application of modalities.

The full guideline (Bouch et al., 2012) and complete reference list can be accessed at http://bacpar.csp.org.uk/publications/guidance-multi-disciplinary-team-management-post-operative-residuum-oedema-lowe

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The Guideline group would welcome comments on the applicability of the Guideline, in particular we would like to hear of it's influence on practice. Any barriers members are encountering in the implementation of it's recommendations and ways in which these problems are being approached or overcome.

We would ask members to open discussion within the pages of the journal in the hope that an informed follow up presentation may be prepared for dissemination at the next conference.

The Therapeutic Management of the Acute Traumatic Amputee

17th – 18th May 2012 at the Queen Elizabeth Hospital Birmingham

Sometimes fate just happens to be on your side. This course was advertised last year just as University Hospitals Southampton Foundation Trust, where I work in amputee rehabilitation, had been awarded major trauma centre status. I was then lucky enough to gain a BACPAR bursary to enable me to attend the course.

The course was run at the Queen Elizabeth Hospital Birmingham,(picture of the hospital) a major trauma centre and the re-patriation hospital for injured service people. This meant expertise from both civilians and the military was presented. Over the two days, we were taught about traumatic amputation injury mechanisms, both civilian and military, the surgical management (debridement not amputation), as well as wound management, plastics intervention, dietetics and pain management. We then moved onto the Physiotherapist's role within intensive care with this group of patients as well as the therapy assessment by both Physiotherapists and Occupational Therapists. The first day concluded with group work on different case scenarios.

At the end of day 1 we were already beginning to appreciate the differences not only in the management of this group of amputees generally but also the differences in treating military amputees, and I don't just mean the accessibility to equipment available to them.

Day 2 started off with practical rolling sessions. Wow, what a gym, and not just one! Even the amount of space available let alone the equipment within it, made one stunned in awe and wonder. Despite these obvious distractions, the practical sessions were excellent, challenging you to re-think your "safe" practise and maybe respond in a more pro-active manner to this group of patients. Outcome measures and goal setting was presented by Captain Anne Vickerstaff along with her outcome measure that could be used for any level and combination of amputation as an in-patient and out-patient measure. Needless to say all BACPAR members present were quite excited!

This course was a real inspiration to the treatment of the young, fit, previously fully independent traumatic amputee with possible multiple limb loss and a catalogue of other injuries. One of the many things that I have taken from the course is the dependent forward/backward transfer. When I returned to Southampton, again fate was on my side by providing me with several amputees whom this technique of transferring could be used upon, showing it's effectiveness not only in a high care area with a fully dependent patient, but also within the rehabilitation of those individuals as they were able to assist more and more with the transfer, ultimately becoming independent in getting in and out of a wheelchair much quicker than before.

I then demonstrated this technique to the in-patient acute therapy team and have since liaised with our manual handling team. This has resulted in the technique being filmed (picture)and uploaded onto our internal internet system to act as a teaching resource to the whole therapies team. This is a new concept that has been a lot of fun in producing and is likely to be used again for other manual handling techniques.

I would like to say a big thank you to all at Birmingham for running such an excellent course and also to BACPAR for the bursary awarded that enabled me to attend.

Marie Hulse - Band 7 Physiotherapist, University Hospitals Southampton NHS Foundation Trust.

Legal Advice from Irwin Mitchell

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Personal Injury

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Specialist Rehabilitation Services Seacroft Hospital Leeds - Open day October 2012

Presentations, demonstrations, displays, and patient experiences were all available to invited guests as part of the highly successful open day at the Specialist Rehabilitation Centre at Seacroft hospital in Leeds on the 18th October 2012.

The specially invited guests included commissioners, GP's, surgeons, trust employees, representatives from charities, military personnel and allied health professionals. They were guided through the patient care pathways, and specialised services available within the centre.

Prosthetics Physiotherapy (Lynn Hirst & Graham Dobbs) demonstrated their early walking aid equipment, and discussed the positive benefits. They displayed examples of current methods of residual limb oedema control including, compression socks, removable rigid dressing, and promoted the importance of residual limb positioning and exercise.

Ready for the commissioners were all the relevant evidence based guidelines currently in use and examples of outcome measures currently used. The feedback from those involved in the commissioning process was very positive regarding BACPARs lead in developing national guidance for amputee physiotherapist and MDTs on the use of outcome measures. They were particularly interested in the patient reported outcome measures, including TAPES (The Trinity Amputation and Prosthesis Experiences Scales) which was deemed very relevant to both patients and potentially commissioners.

The main interest for the guests was without doubt meeting the volunteers who gave up their time to come and discuss their experience of the prosthetics service at Leeds. Lyndsay Adams a lower limb transfemoral amputee brought film and photos of her high wire display during the opening and closing ceremony at the Paralympics. Kathleen Hawkins ambassador for the meningitis trust chatted about her rehabilitation from early walking aid to competitive running. Carl Crisp a transfemoral amputee with an interest in electronics enjoyed discussion with the medical physics engineer, helping design future research projects. We look forward to those ideas taking shape. Finally Dean Smahon was available to discuss his personal experience of both the lower limb and upper limb service.

Staff from the Upper limb service, Ruth MacDonald (Occupational Therapist) and Deborah Haworth (Prosthetist) demonstrated how the service can support patients with upper limb deficit or amputation. Guests were invited to look at a range of equipment for upper limb patients to assist daily living skills such as eating and school work. On display was a full range of Upper Limb Prosthesis including a myo electric hand and bespoke silicone covers.

Rob Whittaker clinical psychologist for the service felt it was great to have so many people coming and asking about the role of psychology in prosthetic rehabilitation. He fielded all kinds of questions about motivation, grief, expectations, teamwork, cognitive problems, the neuroanatomy of phantom pain, health economics and much more.

Many guests had a go at the neuropsychological test challenge, and yet more filled in a quiz. Rob sensed that what really got the message across that prosthetic rehabilitation is importantly a process of psychological adjustment was the presence of our amazing service users: He is sure that what will stick in the minds of those who attended the day will be the stories of the difficulties they have faced since losing their limbs and their responses to these.

The Prosthetic team lead by the Clinical Manager Paul Leishman demonstrated various processes that the service users would go through so a prosthetic limb can be supplied. They were shown our CAD/CAM system which allows the prosthetists to capture the size and shape of a patient's residuum with high accuracy and then modify the model on-screen to improve the fit of the prosthesis.

The guests were shown the workshop facilities where the technical staff carry out a variety of repairs to existing limbs and manufacture of new limbs. Also in the workshop area is the milling machine which carves out a model of the residual limb on instructions from the CAD software. The combination of using the CAD software and the milling machine ensures the high level of accuracy is maintained throughout the manufacturing process. This improves the comfort and effectiveness of the prosthesis.

New prosthetic components were available for guests to see and discuss with the prosthetic clinical staff. These included highly advanced technological prostheses such as the BeBionic prosthetic hand, Genium Knee and C-leg. Guests were also given the opportunity to experience what prosthetic feet feel like to walk on, using bilateral aircast boots fitted with prosthetic feet.

Feedback from the guests regarding the tour of the Specialist Rehabilitation Services were very positive; they felt they gained a better understanding of our departments and the excellent work that we get involved in.

Lynn Hirst Senior Prosthetics Physiotherapist

BACPAR e-articles

Since December 2011 BACPAR has purchased research articles which might be of interest/use to its members and posted them on the members-only section of the BACPAR website http://bacpar.csp.org.uk/
Permission from the publishers to do this costs £59 at present and the cost of purchasing the article is added to that – up to $32, then bank conversion rates are added. It costs £75 - £80 to purchase one article for members.

At the 2012 AGM members indicated that they wanted BACPAR to continue to buy articles but so far there has been no feedback as to how many members are downloading, reading or applying the information gained.

So,
- if you download an article please can you send a short reply (just say "downloaded") to give some idea of how many people are downloading?
- If you read the article can you give a brief idea of how good you thought it was (rate 1-10)? A couple of sentences of comment would be even better.

This will enable BACPAR to judge the cost effectiveness of this service to members and will also guide towards what type of article you find interesting and useful.
Finally if you have found something that you think others should read please let me know! (Contact details below)

Here is a taster of what is available:
Is decreased mobility the cause or the effect of weak musculature?
Visser JMA, McCarthy I, Marks L, Davis RC. (2011). Is hip muscle strength the key to walking as a bilateral amputee, whatever the level of the amputations? Prosthet Orthot Int 35: 451-459

The authors were surprised that hip musculature was weaker for bilateral prosthetic users. Their results agree with those for unilateral prosthetic users that hip strength is an important factor in walking but they were not sure if reduced walking ability was due to limited hip muscle strength or muscle weakness from reduced daily activity.
They stated that with no healthy limb bilateral prosthetic users have to use hip muscles as the main stabilisers and actuators during walking; describing why there is no extra reliance on hip extensors but there is for hip flexors and abductors.

With only 10 subjects the authors suggest a bigger study to confirm the relationship between increased hip strength and improved mobility and also to see if specific training to improve hip strength will show whether decreased mobility is the cause or effect of weak musculature. They recommend a specific programme to increase cardio-vascular fitness and hip strength, to improve the outcome for bilateral prosthetic rehab. These fitness goals should be part of rehab for any amputee patient but the question about cause and effect of decreased mobility is one to think about.

What do you think?

'Confidence with balance is at least as important as basic walking skill in predicting social activity behaviour amongst prosthetic amputees.'
Miller W, Deathe A (2011) The influence of balance confidence on social activity after discharge from prosthetic rehabilitation for first lower limb amputation. Prosthet Orthot Int, 35 (4), 379-386

This well written article provided an interesting discussion on the degree to which confidence affects ability and suggests it is not directly addressed during prosthetic rehabilitation.
The aim of the study was to see if balance confidence changes after discharge from prosthetic rehabilitation and if balance confidence at discharge predicts social activity at 3 months post discharge. Both these were shown to be true.
The study's hypothesis was based on Bandura's theory that balance confidence (also called falls self-efficacy) is as important a predictor as appropriate skill levels in predicting behaviour. Balance confidence is the belief that an individual has the capacity to perform an action or activity without losing balance. Bandura also states that high levels of confidence have positive results on individual functioning and well being and that confidence can be modified given appropriate and targeted intervention.

The outcome measures used to predict social activity were 2 of the ones recommended in the BACPAR toolbox of outcome measures; the Activities specific balance confidence scale (ABC) and the L test (a modified TUG test

incorporating a 90 degree turn to retrace steps). Social activity was measured using the Frenchay activities index.
The results noted that some subjects showed an increase in balance confidence whilst others showed a decrease. Improvement in walking ability didn't correspond to parallel changes in balance confidence and the authors suggested that possibly a longer period of time was needed to change confidence.
They also suggested that a more specialised or targeted intervention may be needed to increase balance confidence further promoting improved social activity.; not just existing interventions but also those suggested by Bandura.

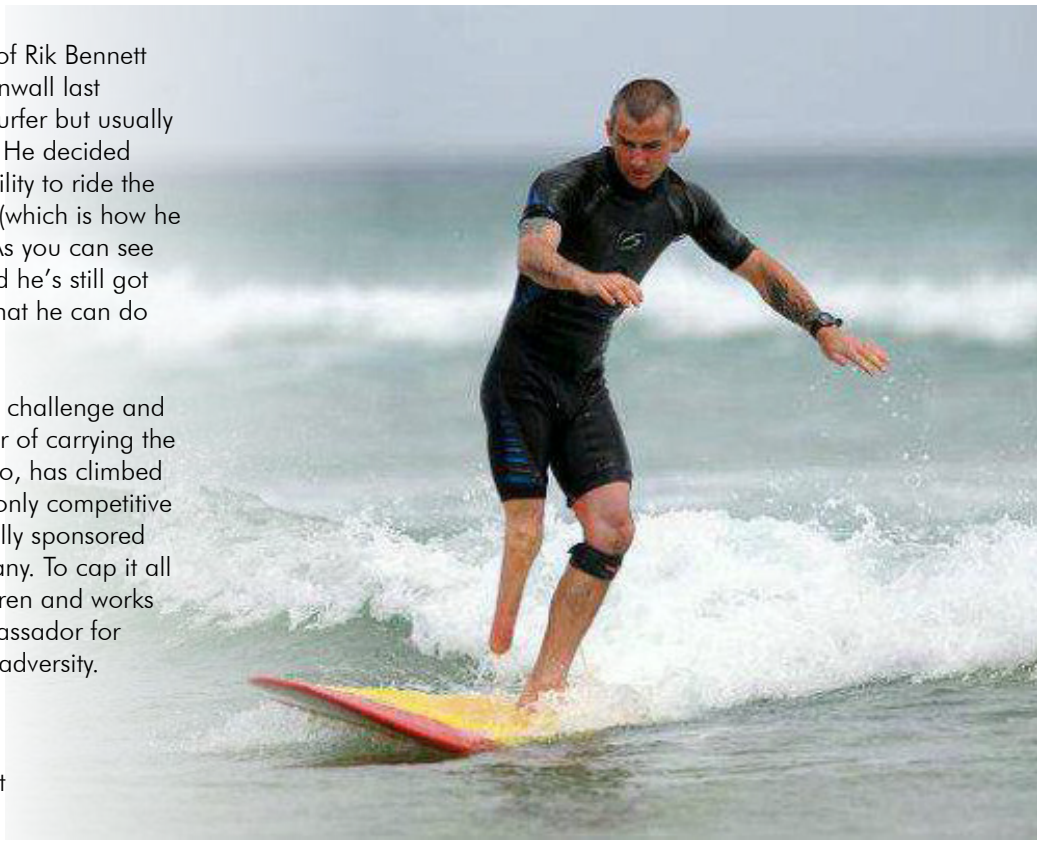
'Successful rehabilitation of an amputee does not only include the ability to perform steady-state level walking, but also performance of more complex motor tasks such as obstacle crossing, gait initiation and gait termination'
Vrieling et al.(2009) Gait adjustments in obstacle crossing, gait initiation and gait termination after a recent lower limb amputation. Clin Rehabil, 23 (7), 659-671

Through gait and balance training amputees learn to make use of the prosthetic foot and knee properties and to replace the role of absent muscles by that of the proximal remaining musculature. Apart from this fairly obvious statement the authors advise that gait initiation (i.e. the first step) should be taken with the prosthetic limb as most difficulties occur in the trailing prosthetic limb and if possible leading with the non-affected limb is preferred when stopping.
The results were obtained by getting 7 primary lower limb amputees going through rehabilitation to step over a wooden obstacle 0.1m high at various stages in their rehab.

The authors identify limitations in the study such as the low number of subjects and also that the first set of results were taken when the subjects were still using an early walking aid that did not allow knee flexion. They did not explain why 5 of them used the PPAM-aid whilst the other 2 used another early walking aid; the Hoensbroek training prosthesis.
It is also questionable why having made the statement about successful rehab including more than steady-state level walking the authors used the SIGAM mobility scale as their outcome measure and not a more functional one that includes negotiating obstacles for example LCI-5.

The authors recommend training in difficult motor tasks is started early in rehabilitation but for obstacle crossing starting to practice too early may result in failure and influence the patient's confidence and motivation negatively, or even lead to falls. However, they do discuss the pros and cons of some features of prosthetic design that might make negotiating obstacles easier and the article has lots of references for those interested in prosthetic biomechanics.

Penny Broomhead - Hon. Research Officer. bacpar.research@gmail.com



The second photograph is of Rik Bennett on Perranporth Beach, Cornwall last summer. He's a very able surfer but usually only with his beach leg on! He decided to see if he still had the ability to ride the waves without a prosthesis (which is how he learned in the first place). As you can see all went well and Rik proved he's still got it!! The first photo shows what he can do with a prosthesis on!!

He isn't one to shirk from a challenge and has recently had the honour of carrying the Olympic torch through Truro, has climbed Mt Kilimanjaro, and is the only competitive disabled surfer to be officially sponsored by a local surfboard company. To cap it all he is the father of five children and works as a postman!! A real ambassador for achievement in the face of adversity.

Jain Ord
'Big Surf' photo - Sara Bunt

PRE-ADMISSION PHYSIOTHERAPY AND OCCUPATIONAL THERAPY FOR ELECTIVE AMPUTATION

Gillian Atkinson, Amputee Clinical Specialist Physiotherapist, Northern General Hospital, Sheffield.

" Planning for hospital discharges should start at the earliest opportunity. This should start prior to admission for planned admissions and as soon as possible for all other admissions" [1]

DESCRIPTION OF THE SERVICE

Patient and Carers are seen by Therapists in the Mobility and Specialised Rehabilitation Centre (M&SRC) and/or their home.

Assessments carried out -

- physical
- functional
- social
- psychological

Information given re: rehabilitation process

Realistic expectations discussed

Pre-admission home visit

Identified needs can be put in place as early as possible

- necessary equipment eg wheelchair
- home adaptations
- social support

BENEFITS

For Patients and their Carers

- Receive information regarding rehabilitation and realistic expectations
- Their needs can be identified
- Enables patient and their carer to plan for their admission
    - Help understand what to expect
    - Prepare for their return home
- Improved patient experience/satisfaction
- Empowered to make decisions
- Reduce anxiety
- Optimum length of stay reduces chance of hospital acquired infections

For Staff

- Contributing directly to the patient experience
- Effective working
- Receive key information in a timely manner
- Improved discharge processes improves professional working practises

For the Service

- Promotes positive relationships within the MDT and with other local providers
- Efficient discharge planning and improved patient flow
- Reduce post-operative length of stay
- Fewer complaints around discharge planning

Please refer to the Amputee Physiotherapy Team as soon as the decision to amputate has been made

Tel: 0114 2715569
or
0114 2434343 bleep 2608

References

1. Achieving Timely "Simple Discharge from hospital. A Toolkit for the MDT Dept of Health 2004
2. Discharge from Hospital: Pathway, Process and Practice. Health and Social Joint Unit and Change Agents Team 2003 Dept of Health

PPAM Aid

The PPAM Aid is used to assist the reduction of residual limb oedema, allow users to begin gait training as early as possible, minimise joint contractures and best prepare the user for benefiting from a definitive prosthesis.

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Roehampton Amputee Swimming Group

Moira Burrows – Queen Mary's Hospital, Roehampton, London
Maggie Uden – Queen Mary's Hospital, Roehampton, London

Feedback questionnaire
May 2012

St George's Healthcare NHS
NHS Trust

Introduction

At Queen Mary's Hospital, Roehampton, the therapy team are passionate about enabling amputees to get back into different forms of regular exercise in order to promote health and wellbeing. An article written by Maggie Uden, 2010, called 'Making Waves in the Community'[1], discussed how the therapy team at Roehampton developed a monthly swimming group for amputees in the community.

Since 2009, the therapy team have been aware of the reported benefits that the amputees were experiencing by exercising in water. However, there had been no formal feedback to confirm this. A patient questionnaire was developed to help collate feedback in order to evaluate the group and identify any patterns in the amputee's experience of the sessions. This will hopefully provide further insight into the perceived benefits of attending a swimming session specifically run for amputees.

Related research

When referring to the NICE guidelines for promoting physical activity with people with disabilities[2], it is stated that the greatest relative health gain comes when a sedentary person is encouraged to begin to become a little more active. It is advised that the activity recommendation needs to be tailored to individual need, however, significant health benefits have been seen with moderate intensity exercise. The guidelines also state that the key to achieving and maintaining a more active lifestyle is for people with disabilities to participate in activities which they personally enjoy, perceive as supportive in maintaining activities of daily living and can be easily incorporated into their routine.

There is very little research specifically looking into the benefits of swimming for amputees and even less still into the benefits of swimming as a peer group. The benefits of aquatic therapy for amputees are discussed in an article written by Young[3]. These included; increase in circulation, improved respiratory function, increase in muscle strength and improvement in mood.

Similar benefits were found when looking at participation in sports in general by amputees. In a systematic review of the literature about individuals with limb amputations and sport participation[4], it was concluded that in general, sports were associated with a beneficial effect on the cardiopulmonary system, psychological well-being, social reintegration and physical functioning.

When looking into the benefits of swimming with peers, there is no specific research as such, but there is an interesting article reflecting on a swimming session run specifically for amputees.This article, also written by Young[5], describes a swimming session run at the Amputee Coalition National Conference called "Swimming for Fun and Fitness". It proved to be very popular, showing a strong demand among amputees to learn swimming techniques, no matter how many years it had been since they had last entered a pool. It was felt that the session showed peer support was as much of an outcome as practical fitness.

Objectives of the questionnairre

- Feedback on how the swimmer felt before and after the session
- Find out what the swimmer's goals of the session were and if these had been achieved
- Feedback on any improvements the swimmer's felt could be made to the sessions
- Find out if the swimmer had attended any swimming session again, if so, where? And if not, what was the barrier
- Feedback on whether the swimmer found the social time after the swimming session useful

Method

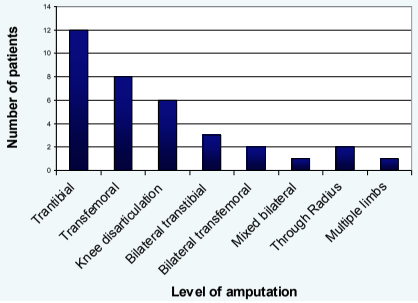
In order to design an appropriate questionnaire, we looked at what information we would like to find out from our patients. With this in mind, we put together a questionnaire which was sent out with a pre-paid self-addressed envelope to the 39 patients that we had taken swimming up until that point, from June 2008 to June 2011. We allowed 6 weeks for the replies before the responses were collated.

The following statistics show the details of the 39 swimmers

Total	39	
Males	28	72%
Females	11	28%
Primary	24	62%
Established	15	38%

Age	
Minimum	20
Maximum	72
Average	44.41

The different amputation levels of the 39 swimmers sent the questionnaire

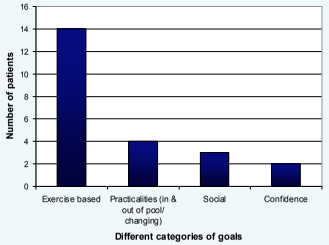


Results

We received 23 replies from the 39 questionnaires that were sent out. This gives a 59% response rate. In order to quantify the data that we received, the common themes of answers that were received were grouped into categories.

What were your goals for the swimming session?

- 18 of the 23 amputees felt that they met their goal of the swimming session



Did you have any anxieties about swimming for the first time following your amputation?

Answers to 'If yes – what were they?'

- 'Embarrassed and lacked confidence'
- 'The process of changing and dressing'
- 'How to get in and out of the pool'
- 'Whether swimming was even possible'
- 'Nervous about sinking'
- 'I would go around in circles!'

Yes	12
No	11

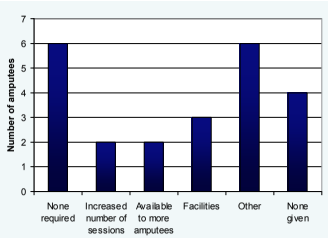
How did you feel after the swimming session?

- 'Exhausted!'
- 'Good, pleased to still be able to take part in activity'
- 'Great, wanted to go again!'
- 'Sense of achievement, refreshed and energetic'
- 'Exhausted after the first few sessions but now that I am starting to build up stamina it is getting easier'
- 'No more worries over swimming on my own'

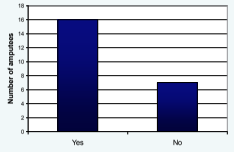
Was it useful to have social/coffee time at the end of the session and why?

- 22 amputees found the social time after the session useful.
- The reasons why included; to socialise with other amputees, share experiences and develop friendships.

How do you think that the sessions provided could be improved?



Have you been swimming again since your first session?



Where?

- Cottingmore Golf Club
- Guildford Spectrum
- Woking Leisure Centre
- Mitcham Leisure Centre
- Epsom Rainbow Leisure Centre

Conclusions and further work

The questionnaire results have provided us with feedback that has been valuable in the following ways:

- Confirmation of patient satisfaction with the sessions
- Confirmation that the social time is a beneficial part of the session
- Evidence to use when discussing patient anxieties about swimming
- Information on other swimming pools that amputees have used in different areas around the country

Further work

- The number of amputees and frequency of sessions that are currently available have been discussed. Unfortunately, an increase would be unrealistic due to staffing levels, resources and the therapy time required. Therefore, the sessions will continue to run monthly and will be offered to as many amputees as possible.
- We plan to complete a follow-up questionnaire in 2 years time in order to gain further feedback
- To feedback to Epsom Rainbow Centre on questions related to their service

References: [1]Uden. BACPAR Journal 2010; 32:22-23
[2]Health Education Authority. Guidelines 1997; Active for Life: promoting physical activity with people with physical disabilities
[3]Young. InMotion 2008;18(6):44-45
[4]Bragaru et al. Sports Medicine 2011;41(9):721-740
[5]Young. InMotion 2007;17(6):63-65

Acknowledgments: We would like to thank the members of **S.T.E.A.D.Y.** and the staff at **Epsom Rainbow Leisure Centre** for their continuing support.

Patient trial of Helix Hip and C-Leg prosthesis

The physiotherapy experience of producing evidence for consideration of funding by an Individual Patient Commissioning Committee

Julie McAteer and Anne Blundell, Senior Physiotherapists
Aintree University Hospitals NHS Foundation Trust. Liverpool

Introduction

- In February 2010 the Physiotherapists in the Prosthetic & Wheelchair Centre at Aintree University Hospitals were asked to participate in a patient trial of a Helix Hip/ C-Leg prosthesis. This was at the request of the Individual Patient Commissioning Committee (IPCC) who were considering funding.

Physiotherapy aims and objectives

- To determine if quantitative and qualitative improvements could be demonstrated throughout the trial, compared to the patient's performance on his prescribed prosthesis.
- To present this evidence in a logical, concise manner and submit to the IPCC by their deadline.

The Patient

- 42 year old male
- **Amputation details:** Hip disarticulation 1986 due to osteogenic sarcoma
- Highly motivated
- Previously mobile unaided but had a 5 year history of joint pain and reduced mobility causing dependence on walking aids to increase confidence especially on slopes and stairs.

Methods

- Baseline information including various objective measures, subjective questionnaire and video footage using his prescribed prosthesis.
- 5 week trial of Helix Hip/C-Leg prosthesis including home use.
- Daily physiotherapy for 1 week then weekly sessions for a further month.
- After 1 week of trial - objective measures and video footage repeated.
- After 5 weeks of trial - objective measures and subjective questionnaire repeated plus gait assessment by Physiotherapist and Prosthetist.
- Results collated (objective measures and video footage by the Physiotherapist; subjective information by the Prosthetist) and presented for consideration by the IPCC.

Measures used:

- Timed Walk Test – 4 minutes & 6 Minutes
- Timed Up & Go Test
- Timed ascent & descent of 1 flight of stairs – patient requested measure
- Tinetti Balance Assessment
- Prosthesis Evaluation Questionnaire (PEQ)

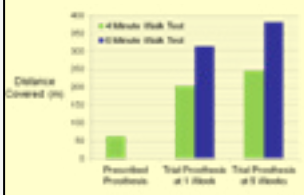
Physiotherapy Treatment

- Gait and postural correction
- Helix Hip Joint System "Gait training instructions" supplied by Ottobock
- Core stability work and stretching programme
- Functional activities including walking at different speeds, on uneven ground, slopes and stairs
- General exercise and home exercise programme

Results

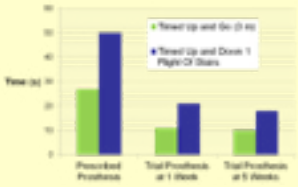
- Pre-trial the patient used 1 elbow crutch to improve his stability and confidence. Objective measures were therefore completed using 1 elbow crutch.
- Objective measures at 1 week and 5 weeks with the trial prosthesis were completed without walking aids.

Timed Walk Tests



N.B. On his prescribed prosthesis the patient was unable to complete 6 minute walk test as fatigued after 4 minutes and needed to stop.

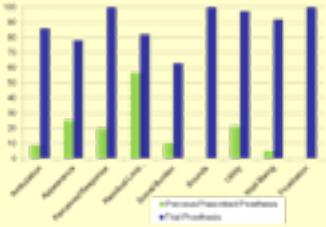
Timed Activities



Tinetti Balance Assessment

N.B. Maximum score on Tinetti Balance Assessment is 28

Prosthesis Evaluation Questionnaire (PEQ)

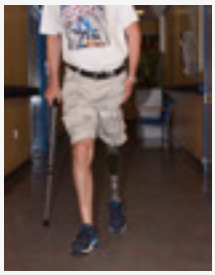


N.B. The higher the score for any given domain, the more the patient is satisfied with a particular prosthesis

Analysis of Video Footage and Gait Assessment

Gait defects observed	Prescribed prosthesis	Trial prosthesis at 1 week	Trial prosthesis at 5 weeks
↑lumbar lordosis			
Use of walking aids			
Vaulting			
Trunk side flexion on weight bearing			
Unequal step length			
Lack of arm swing			
↓balance on slopes/uneven ground			
Descends stairs 1 step at a time			

Severe/Always Moderate/Sometimes Resolved/Never





Summary

- Greatest improvement in objective measures shown following 1 week of training.
- Some improvement in objective measures after a further month of training but less marked.
- Comparison of video and gait assessment showed gradual improvement in the quality of gait throughout the whole trial period.
- The patient reported outcome used (PEQ) showed that the patient was significantly more satisfied with the trial prosthesis across all the domains.

Outcome

- Evidence from the trial was submitted to the IPCC along with a statement from the patient and his GP.
- The case was discussed at the IPCC meeting 23/06/10
- The IPCC approved funding **"as the results of the trial showed significant improvement in the patient's mobility and quality of life."**

Conclusion

- ***Robust evidence can support a patient's application for funding of non-standard components from IPCCs.***
- ***Physiotherapists are in a good position to assist in gathering the evidence required to enable IPCCs to make an informed decision.***

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Acknowledgements

Thanks to:

- The clinical team involved in other aspects of trial
- Administrative support staff
- Neal Wilkinson – Physiotherapist
- Clinical Photography Department
- Patient for his kind permission to use images to support this presentation

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Comparison of functional outcomes for primary amputee patients at 1, 3 & 6 months post fit-delivery of a lower limb prosthesis at different rehabilitation locations.

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Acknowledgements: Esther Platts and Robert Bateman, Physiotherapists, Guys & St Thomas' NHS Foundation Trust

Introduction:

The Bowley Close Rehabilitation Centre provides (BCRC) a Regional Prosthetic Rehabilitation Service (PRS) to the registered population of South East London and Kent. Due to high demand for the physiotherapy service, only amputees in the neighboring boroughs of Southwark and Lambeth are seen for their physiotherapy at the centre. Patients in other boroughs are seen by local physiotherapy outpatient services (OPs). Additionally, some patients are referred from the Acute setting to non specialist bed based rehabilitation (BBR) if required. Due to the lower volume of amputees accessing these services, they typically are not resourced with static physiotherapy posts with specialist amputee skills.

In November 2011, a pilot study was designed to objectively assess the affect of the rehabilitation setting on lower limb amputee outcomes at 1, 3 and 6 months post fit delivery of prosthesis. The study also aimed to gain a greater understanding of the co-morbidities of these patients and whether this could contribute to lower outcomes rather than the rehabilitation setting.

Aim:

To compare at 1, 3 and 6 months the functional outcomes of amputees provided with a lower limb prosthesis at different rehabilitation locations in south east London.

Inclusion Criteria:

All lower limb amputees referred over an 8 month period that were provided with a prosthesis.
Outcome measures (OMs) for all patients completed at reviews at the PRS, specifically:
Timed Up & Go (TUG) (Schoppen *et al,* 1999), 2 Minute WalkTest (2MWT) (Brooks *et al, 2001),* Locomotive Capability Index (LCI-5) (Franchignoni *et al,* 2004).
Patients needed to have completed 1,3 and 6 month review as per local protocol.

Method:

- Patients were put into 3 groups depending on rehabilitation setting:
  Prosthetic Rehabilitation Service, Outpatient Physiotherapy Service and Bed Based Rehabilitation.
- Retrospective data collection of results of outcome measures were interpreted on an Excel Spreadsheet.
- Unpaired T Test (median), with unequal variance used to calculate significance between groups for each outcome measures at 1, 3, and 6 months. Median calculated as needed for appropriate statistical text.
- Use of Charlson Co-Morbidities Index to score co morbidities for each patient (Chauchry *et al,* 2005).
- Unpaired T Test, with unequal variance used to calculate significance between Co-Morbidities at each rehabilitation location.

Limitations:

- Pilot study only had a small sample size. Significant outliers were excluded due to this.
- 1 month data was excluded due to missing data for OMs that were not completed due to safety concerns.
- Inter-rater reliability for completing OMs (Condie, 2008).

Results:

- Missing data at 1 month and so 1 month results excluded.
- No significant difference between all rehabilitation locations for TUG. Poor data collection.
- Better outcome measure results at PRS compared to OPS however the difference was not significant.
- Significant difference between PRS and BBR at 3 and 6 months for LCI-5, SIGAM score and 2MWT.
- Significant difference between OPs and BBR at 3 months, with BBR showing poorer outcomes.
- No significant difference between patient demographics (age, gender, level) at varying rehabilitation locations.
- Significant difference of co-morbidities at PRS and OPs compared to BBR .

Comparable Data	2 MWT p-values		SIGAM p-values		LCI-5 p-values	
	3 months	6 months	3 months	6 months	3 months	6 months
PRS Vs OP	0.053	0.14	0.52	0.33	0.25	0.4
PRS Vs BBR	0.003	0.008	0.025	0.039	0.0039	0.044
OP Vs BBR	0.04	0.06	0.046	0.12	0.026	0.11

Comparable Data	Charlson Co-Morbidity Index Non- Age Score	Charlson Co-Morbidity Index Age Adjusted Score
PRS Vs OP	0.415	0.397
PRS Vs BBR	0.014	0.014
OP Vs BBR	0.023	0.018

Discussion/Conclusion:

There are differences in functional outcome of patients at varying rehabilitation settings.
BBR showed outcomes significantly lower than the PRS at 3 month and 6 month reviews and lower than OPs at 3 months.
We are unable to make conclusions from this small pilot study if these differences were due to:
1: Skill mix of staff at different locations and lack of specialist amputee therapists at BBR.
2: The significant difference in co-morbidities at BBR compared to PRS and OPs.

Recommendations:

Further research is needed to understand why there are significant differences in patient outcomes dependant on rehabilitation location. The next stage is to send a competency questionnaire to treating therapists at referring BBR Units to establish the skill mix of those staff treating amputees at these centre's and equipment available. Additionally, results at the non specialist BBR units could be compared to specialist BBR units in the region.

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BACPAR membership for 2013 is due from the beginning of March.

The categories have not changed since last year, but please check the following details to ensure you apply for the correct membership. We are still unable to offer on line payment this year but watch this space for next year!

The new membership form should be available on iCSP and the BACPAR website and will also be e-mailed out to each member. Please complete the online application form in full, and send me your cheque to the address given.

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Gillian Atkinson - MembershipSecretary

SPARG Report 2010: A Survey of the Lower Limb Amputee Population in Scotland

Executive Summary

This is the 18th Annual Report of data collected from lower limb amputees in Scotland by the Scottish Physiotherapy Amputee Research Group (SPARG). All major amputations carried out in 2010 are included, that is ankle disarticulation (A.D.), trans-tibial (T.T.), knee disarticulation (K.D.), trans-femoral (T.F.), hip disarticulation (H.D.), and trans-pelvic. Patients having partial foot amputations and amputation of the toes are excluded.

All data are entered locally onto the SPARG web-based database. The data base has reporting facilities which allow for local data checking and analysis (list in Appendix B of full report).

National and individual hospital data are presented in this report. Individual hospital data are summarised to facilitate comparison of outcomes and the benchmarking of services. The data items or key performance indicators for each hospital were identified by a previous national, multidisciplinary benchmarking exercise (Scott and Patel 2009).

Once again, the national data are broadly consistent with these from previous years; significant changes and trends of note are reported in this summary. Where possible, comparisons are given in the body of the report for at least the 5 years 2005-2010.

Results

In 2010 there were 740 amputees and 763 amputations, some patients having a re-amputation to a higher level, or a bilateral amputation, during the same episode of care. Numbers have remained the same for the past three years. The quality management "data checking" system introduced in 2003 continues to be highly successful. The percentage of records which are complete in every respect is 93.1%.

Demographic data remain similar over 5 years. The mean age at amputation is 68.5 years in 2010 and peripheral arterial disease, with or without diabetes, accounted for 86.5% of all amputations. The percentage of amputations due to diabetes has risen slightly to 45%. In this group males outnumber females by 2.6:1 and the mean age at amputation is four years less than the group with peripheral arterial disease without diabetes.

The percentage of amputations carried out at a T.T. level in 2010 was 50%, reduced from a peak of 60% in 2007. When individual hospital data are examined, the differences are large, varying from 80% to 38%.

43% of all amputees are fitted with a prosthesis. When examined by level, 70% of T.T. and 32% of T.F. amputees are fitted. There is still discrepancy between males and females fitted with a prosthesis with significantly more men being fitted than women (T.T., M:F=75%:59%) (T.F., M:F=40%:20%). When individual hospital data are examined, the

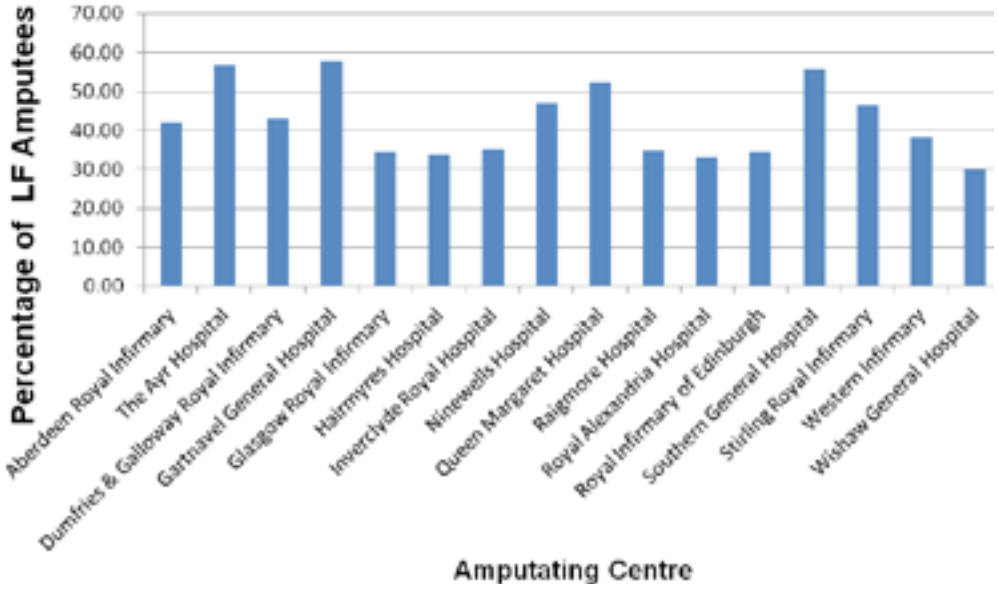

Table 1: Percentage of amputees who were limb fitted in each of the amputating centres (> 5 amputees)

differences in percentage of amputees being successfully fitted are large, varying from 58% to 29%.

For the fifth year, the figures for prosthetic rehabilitation being abandoned are reported. These are unilateral, T.T.= 1.4%, unilateral, T.F.=10.2% and bilateral, 5.1%.

Discussion and Conclusions

New local audit, research and development projects

The SPARG data set has been central to several additional pieces of work as follows (further details in Appendix A of full report): -

- An MSc project analysing SPARG data for patients having undergone a T.T. or T.F. amputation for peripheral arterial disease (PAD) with or without diabetes in the years 2007 to 2009 has revealed that in this cohort, proportionally half as many women were successfully fitted with a prosthesis as their male counterparts (Fiona Smith, 2012).
- A collaborative project linking SPARG data to vascular surgery data to investigate factors affecting survival following major lower limb amputation for PAD with or without Diabetes, indicates that those people not successfully fitted with a prosthesis have a significantly poorer long term survival rate compared with those who are fitted (Wesley Stuart, 2012).
- SPARG data was used to answer the question: 'Has centralisation of the Vascular Service in Glasgow been successful? A physiotherapists perspective'. This local audit revealed that in Glasgow, the length of stay of non-limb fitted amputees transferred from the specialist amputating service to non-specialist wards had a significantly increased their mean length of stay by 28 days (Joanne Hebenton, 2012).
- The evidence based practice guideline 'Exercise Intervention for the Treatment of Patients with Intermittent Claudication.' was published this year (McNaughton et al 2012).

Changes in practice

Prompted by the increased number of T.F. amputees abandoning prosthetic use, SPARG developed a physical assessment tool to aid pre-prosthetic assessment of these patients, the Trans-femoral Predictor (TFP) (Condie et al 2011). The TFP is now in use in several amputating centres and prosthetic services in the UK ensuring a more standardised and explicit physiotherapy assessment for T.F. amputee patients whose potential to use a prosthesis is uncertain.

Key messages from 2010 SPARG data

- The number of amputees and amputations has remained the same for the past 3 years
- Outcomes vary significantly between hospitals, most noticeably, the proportion of amputations carried out at T.T. level and proportion limb fitted
- Significantly fewer women are limb fitted compared to men.
- Fewer T.F. amputees are limb fitted and more abandon use of their prosthesis within the rehabilitation period compared to T.T. amputees
- Fewer patients are using early walking aid therapy, for example, PPAM aid within 10 days of surgery
- Time from surgery to casting for first prosthesis has increased by 10 days for transtibial amputees and 10 days for transfemoral amputees since 1997

Points for action

SPARG physiotherapists require to investigate why there appears to be a trend for fewer amputees to be treated with EWAs prior to 10 days after surgery. A critical literature review (Smith et al 2003) and Evidence Based Practice Guidelines (Dawson et al 2008, Bouch et al 2012) indicate that early use of these devices is associated with improved wound healing, reduced post-operative oedema and earlier prosthetic fitting.

The large variation in the proportion of amputees successfully limb fitted between centres warrants investigation by the local multidisciplinary teams as being more mobile after lower limb amputation not only improves quality of life (Pell et al 1993) but, being fitted with a prosthesis is now linked to improved long term survival rates.
Can outcomes for women after amputation be improved?

Can long term survival rates of patients not fitted with a prosthesis be improved?

Helen Scott - Team Leader Physiotherapist and SPARG Chairman Westmarc helen.scott@ggc.scot.nhs.uk

Full report available from SPARG website: (http://www.knowledge.scot.nhs.uk/sparg.aspx) or email as above.

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SPARG

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Documents / Guidelines for sale

- Annual report - Electronic copy available
- Clinical Guidelines for the Physiotherapy Management of Intermittent Claudication (revised 2012) £20
- PPAM aid Guidelines £15
- Prosthetic Knee Guide (2 left!) £15

For further details on any of the above:-
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