

Revolutions

Official publication of the Peter Harrison Centre for Disability Sport
Issue 24 Winter 2018/19

“Our mission is to improve knowledge about Paralympic sport and to promote the substantial health and quality of life benefits that can be gained through participation in disability sport and physical activity.”



Selected highlights in this issue:

Rehab Move Congress 2018: Groningen – pg 4-5

International Symposium in Japan – pg 6-7

Media Coverage - pg 13

Spotlight on Caz Walton – pg 20-21



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Peter Harrison Centre
for Disability Sport

Director's Foreword by Vicky Tolfrey

The new year is a chance to move forward yet collating this newsletter has brought back many special memories. Firstly, 2012 seems distant, but many fond memories surface when I read the spotlight article on my room buddy 'Caz Walton'. I know that she never forgives me for my alarm clock going off so early when I was dashing to open the Performance Centre! As for 2018, I would like to thank all our Japanese colleagues for making myself and other PHC friends feel so welcome in Japan for the delivery of the successful Wakayama - Loughborough symposium. I would also like to thank my new Korean friends for welcoming me during my two visits. Ending the year with friends and PHC colleagues in Groningen, Holland was a fun and rewarding conference for all. Best wishes for 2019.

Vicky

Director of the Peter Harrison Centre for Disability Sport



New PHC Members



Honorary Clinical Professor in the School of Sport, Exercise and Health Sciences, at Loughborough University – Nick Webborn.

As a member of the International Paralympic Committee (IPC) Medical Committee since 2001, Nick has been instrumental in leading injury and illness surveillance and prevention in Paralympic sport. He was awarded the OBE for services to Paralympic Sports Medicine and the British Paralympic Association (BPA) in 2016. He is currently the Chair of the BPA and is a Professor in Sport and Exercise Medicine at the University of Brighton.

Vicky and Nick have been working together since Atlanta 1996 and this appointment is a fantastic opportunity to bring Nick's expertise more formally to lead the world in the area of Para sport science and medicine.

Doing Sport Psychology in International Disability Football: Contemporary Research and Practice Perspectives

by Jamie Barker

At the annual British Psychological Society's Division of Sport and Exercise Psychology conference in Belfast (2nd to 4th December 2018), Dr Jamie Barker (Senior Lecturer in Sport and Exercise Psychology) and other colleagues from the UK presented a research symposium on working in Elite Disability Football. In this symposium we presented professional practice insights and applied research from our work in disability football across a range of disabilities and age groups. Specifically, we delineated the challenges, practical considerations, and recommendations for practice and future research.

The symposium started with an overview of the resilience-based interventions which we have used in international Cerebral Palsy (CP) football. Content was provided on how we have used athlete and coach life narratives to enhance individual and collective resilience. Moreover, further content was provided on challenging the irrational language used by coaches and players to enhance well-being. The second presentation provided a series of professional practice reflections into the application of sport psychology provision with visually impaired athletes. The key emerging

themes and recommendations included: practitioner attitude, cognitive load, understanding game demands, basic psychological needs, retaining normality, and activist identities. In the third presentation, material was outlined relating to the efficacy of a 2-year leadership development intervention delivered in elite CP football prior to and during the 2016 Rio Paralympic Games. The intervention was based around a contemporary social identity leadership perspective and focused on establishing meaningful relationships, a shared vision and values system, and the development and use of a senior leadership group. Finally, the symposium concluded with commentary on the challenges coaches face when working in disability football along with some of the Football Association's coaching initiatives. These initiatives included the development of disability coach education specific awards and workshops. This event was the first time we have collectively outlined our work in a conference setting. Presently, we are working on a number of research projects in the context of disability football around organizational stressors, resilience, and well-being.



Left to right; Dr. Jamie Barker - Loughborough University, Dr. Andrew Wood - Staffordshire University, Dr. Matthew Slater - Staffordshire University, Jonathan Whittingham - University Campus of Football Business

Scrooge, Sofas and Singing: Seasonal Cheer at 6th Rehab Move Congress 2018 by Anthony Papathomas



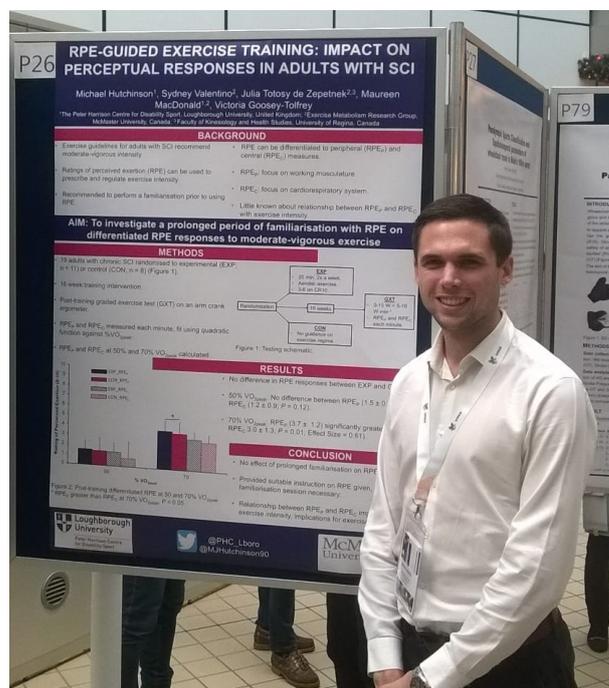
The PHC descended en masse upon the delightful Dutch town of Groningen for the 6th Rehab Move Congress 2018. Our recent **Vice Chancellor Team of the Year** award added coins to the conference coffers allowing 8 staff and students to attend. We were joined by more than ten PHC alumni and honorary members from across the globe, rendering the picturesque setting something of a home from home.

A mid-December conference can't but carry an air of seasonal spirit and Groningen didn't hold back on festive cheer. The frosted streets pumped out Christmas classics from wall-mounted outdoor speakers and the scent of fresh pannekoeken and sharp koffie filled the air. Even the bell-ringing cyclists, of which there were thousands, began to sound somewhat melodic. Such was the atmosphere that Barry Mason, resident scrooge and shunner of all sentimentality, afforded a heartfelt smile at a singing Santa off the main square. Good times.

This was no Christmas jolly however and there was work to be done; oral and poster

presentations to be delivered aplenty. The conference's single-session structure enabled all delegates to attend all presentations, guaranteeing the speakers a large and engaged audience. Christof Leicht was first to perform and what a performance it was. Discussing hot baths as a potential supplement to exercise, an orthodox beginning soon gave way to improvised audience repartee. Harking back to his former career in Swiss boy band *Scream*, Dr Leicht worked the room with aplomb – at one point even stopping to use a conveniently placed sofa as a prop. One-part scientific communication, one-part live stage show, attendees simply lapped it up. Christof's final studio album before turning to academia was entitled "Negligent"; which is exactly how to describe the few delegates who missed this masterclass.

Christof's PhD student Sven Hoekstra gave an exceptionally mature and polished talk despite not having the vast stage experience of his supervisor. Addressing research into the role of autonomic function in spinal cord injured individual's inflammatory response to exercise, Sven cut a confident and composed figure. He has been a fantastic asset to the PHC over the past 3 years and it is a fantastic coup to secure his skills for a while longer as a Research Associate.



My own presentation, entitled *Understanding the Transition into Disability Sport*, was scheduled for the final session of the final day. Still painfully hoarse from the previous evening's karaoke exploits – I had begrudgingly sang 11 times – I was relieved to be wired up to a microphone headset.

Fortunately, unlike the night before, I was left to perform alone without Professor Thomas Janssen encroaching into my limelight. This funded research was a product of the PHC's memorandum of understanding with the English Institute of Sport and I was pleased to field several questions at the end. The idea that the process of becoming an elite Paralympic athlete presents many psychological challenges clearly resonated with people.

Other highlights included Keynotes from our honorary affiliates Professors Kathleen Martin Ginis and Brett Smith, posters from Barry Mason, Mike Hutchinson, Ben Stone, Simon Briley and Jan van der Scheer, and a closing guest Keynote from Esther Vergeer - one of the most successful athletes of all time. I

thoroughly enjoyed my first Rehab Move conference and huge credit must go to PHC friend and collaborator Riemer Vegter and his organising committee. It was a triumph of an event and I must confess to feeling some sadness as we all boarded the train at Groningen station to head towards Schiphol airport where we would catch our flight early the next morning. Early to bed or a team Friday night out in Amsterdam? Anything but the latter would be, as some might say, *negligent*.

Mike Hutchinson commented: "This was my first Rehab Move conference, and I had a brilliant time. By having no parallel sessions, it meant we got to hear about a wide variety of work from different disciplines, not just work within our area. It was also great to catch up with so many colleagues from around the world, as this meant the social side of the conference was also really enjoyable."



International Symposium of Sports Medical Science for Persons with Spinal Cord Injury by Maureen MacDonald, Christof Leicht and Vicky Tolfrey

No, we do not usually dress like this... but to blend in with our Japanese hosts we did our best to impress! 2018 marked a highlight of the long-standing Wakayama-Loughborough relationship with a party of eight members or affiliates of the PHC travelling to Japan to help run a joint symposium. The aim of this symposium was to involve Japanese researchers and students into our collaborative research to stimulate ideas for further collaboration. We further used the meeting as a platform to discuss past collaborative projects, a round table discussion with all collaborators present facilitated this process (it really is a lot easier to do this face to face rather than using Skype!).

Prof. MacDonald commented 'This trip provided a wonderful opportunity to connect with the colleagues from Loughborough and

Wakayama who facilitated my former student, Dr Jason Au, during his research visit in the summer of 2017. The location of the symposium on the harbour front in Wakayama was outstanding and many connections were made'.



The picture, by the way, was taken as part of a visit to a traditional Japanese guesthouse, complete with hot water springs, sushi, and straw mats for the night. So, in addition to the research experience we have with our collaborators, it is always a great cultural exchange!

Dr Leicht commented 'We are very grateful for the relationship we have with our Japanese collaborators. It has led to a couple of researcher exchanges between the countries, mainly members from the PHC working in Japan on a project basis. We are currently planning to return the favour and host a Japanese researcher at the PHC'.



Speakers and delegates from the symposium during the hike of UNESCO world heritage site.

Following the two day symposium the invited speakers and our local hosts embarked on a two day bus tour to the Kumano Kodo area and had an amazing experience in this unique cultural area of Japan. During the tour we hiked a UNESCO world heritage site, had an opportunity to try “forest-bathing” under the watchful eye of our guide Sunshine, sample traditional Japanese meals and even try our own version of heat stress in a hot spring (Onsen spa). One highlight of the visit was attending the newly opened Katsuura Onsen Hospital where in the rehabilitation centre, we observed many examples of active healthy living and innovative rehabilitation programs linked to the scientific expertise at Wakayama Medical University.

Finally, Prof. MacDonald commented: “Thanks to my hosts Professor Fumihiko Tajima and to Prof. Vicky Tolfrey for making the connection

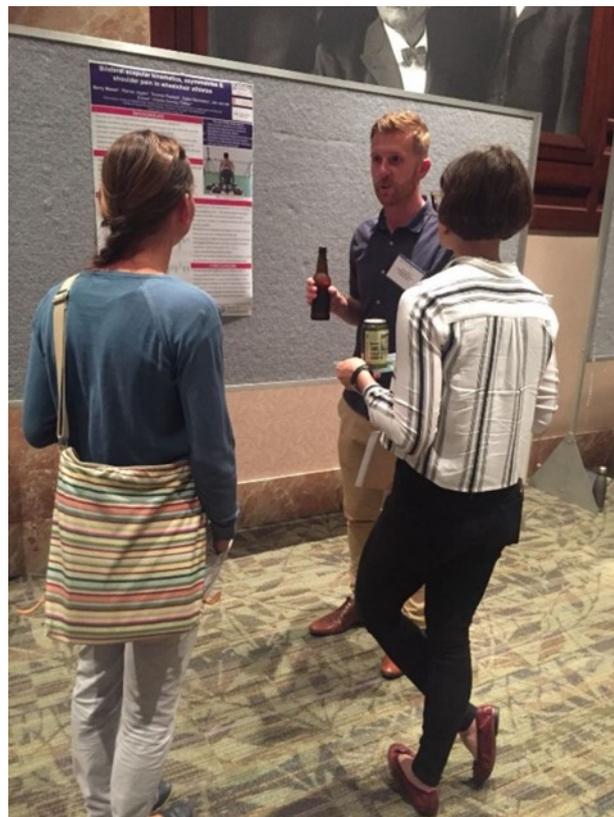
and continuing to expand the connections between my research group at McMaster and the wonderful scientific and knowledge translation activities of the PHC’. She said her highlight photo was ‘cheers to plum wine with Vicky’.



International Shoulder Group Meeting by Barry Mason

During August I was fortunate enough to visit the USA via a Santander Mobility Award grant. The funds enabled me to attend the International Shoulder Group (ISG) Meeting in Rochester, Minnesota and then visit Prof. Rory Cooper and Dr Dan Ding from the Human Engineering Research Laboratories (HERL) at the University of Pittsburgh.

This was a fantastic trip, as it firstly enabled me to attend my first ISG meeting along with Dr Martin Warner from the University of Southampton. It was great to meet with and hear presentations from a number of the world's leading shoulder experts on an area that is clearly very important to wheelchair users. It was also nice to present some of our research that we have conducted with wheelchair athletes and receive some feedback from these individuals as well as establish a few contacts that we will hopefully collaborate with in the future. A lot of information was certainly acquired to help shape our own research in this area.



The second part of my trip saw me take the short flight to Pittsburgh where I spent a day with Prof. Rory Cooper and Dr Dan Ding from HERL. It was great to see the facilities at HERL and learn about all of the leading work they do here. Speaking to Rory and Dan was also really insightful, as although I have read numerous publications of theirs over the years, this was the first time we had officially met. It was particularly interesting to find out about the work they have done on activity monitoring in daily life wheelchair users. They have collected data from wheelchair users using pressure sensors in the seat and wheel/wrist worn activity monitors. These devices can be used to understand more about the number of transfers and pushes etc. that wheelchair users perform in a day. This is very valuable information and certainly food for thought about how we could integrate this type of technology to facilitate our own research in the future.

Ongoing Wheelchair Rugby Classification Projects at the Nottwil Low Point Tournament by Barry Mason

I recently led a research team at the Swiss Low-Point Tournament in Nottwil, Switzerland, as part of a wheelchair rugby classification research project. Working alongside Dr Viola Altmann and assisted by Mike Hutchinson, Shannon Drew (PHC), Francesco Bettella and Gianfabio Costa (University of Padova, Italy) the aim of the project was to collect some data to enable us to understand more about the impact of arm impairment on performance measures specific to wheelchair rugby. The ultimate aim of the project is to ensure that the sport of wheelchair rugby is working towards evidence-based classification to make sure it is compliant with the International Paralympic Committee's (IPC) classification code and secure its future inclusion in the Paralympic Games.

The project itself did not get off to the best of starts when half of our equipment did not make it on the flight to Switzerland with us. However, after a late night of setting up we were soon back on track and ready to collect data by the time the tournament started. We first sought to understand how arm impairment affects strength loss in spinal cord injured wheelchair rugby players, which required players to complete a series of isometric strength tests on a rig developed by our colleagues in Italy. The second phase of this testing was then to establish how this loss of strength, caused by arm impairment, impacted upon activities specific to wheelchair rugby performance, which took place during a series of field tests but also during competition itself. During the competition all players were tracked using the Indoor tracking system, which enabled us to see how impairment affects the activity profiles of players by looking at metrics such as distance

covered, speeds reached, and time spent in different speed zones. In addition to this, all matches were videoed so that technical aspects of performance could also be quantified so that the impact of arm impairment on ball handling tasks could also be explored.

All in all, this was a very busy few days of data collection however a large number of athletes agreed to participate and the venue (Swiss Paraplegic Research Centre) was incredible, which made it all very worthwhile. Although we are still processing the data at the moment things look very promising and hopefully some preliminary findings should be available shortly.



Stop Press

Johanna Rosen visited the PHC in November 2018 as part of an ongoing collaboration: "My visit to the PHC was great and well organised. I had meetings with people from the PHC, British canoeing and British Paralympic Association. I also got to see some data being collected on a wheelchair rugby player in the lab. I always feel very inspired after being at the PHC and seeing the work that is being done there".

The Biomechanics of Wheelchair Tennis: An Integrated Approach to Optimise Performance by *Cristina D'Angeli*

The sport of wheelchair tennis (WCT) was first established in the 70s for those who had an impairment in their lower body. Among wheelchair sports, WCT is one of the most rapidly growing sports. As a result, it is becoming professional and consequently there is more attention toward optimising performance and reducing risk of injuries. Performance in WCT is multidimensional. Certainly, the quality of the serve technique is one of the most important, as without its high-quality performance the success in this sport is not possible.

Unfortunately, current technical instruction on the WCT serve is guided to some extent by the biomechanical information describing the able-bodied serve, thus serve technique needs to be deeply explored.

Cristina D'Angeli's PhD (supervised by Vicky Tolfrey, Mark King and Barry Mason) is a collaboration between Loughborough University and The Lawn Tennis Association, and has been designed to investigate the serve technique in WCT, quantifying the movements, identifying any differences in serve motion patterns between classifications and playing experience and, lastly, examining if and how performance changes under fatigue.

Methods

Three testing sessions took place with a total of 15 national and international WCT athletes from the three different playing standards. This work represents the first attempt to quantify the features of a successful serve in WCT in terms of ball kinematics (speed, height, location on the racket face) for different athletes' skill levels and divisions. Athletes were invited to perform 20 successful serves from both right and left service court.

Results

Elite players hit more powerful shots. In addition, an evident relationship between the player's impairment and performance in wheelchair tennis serve, has been shown. However, this first study highlighted the need to investigate serve technique features from a heterogenous WCT group. Therefore, more quantitative data from a worldwide spectrum of WCT, athletes are needed to explore the factors that highly characterise an effective WCT.

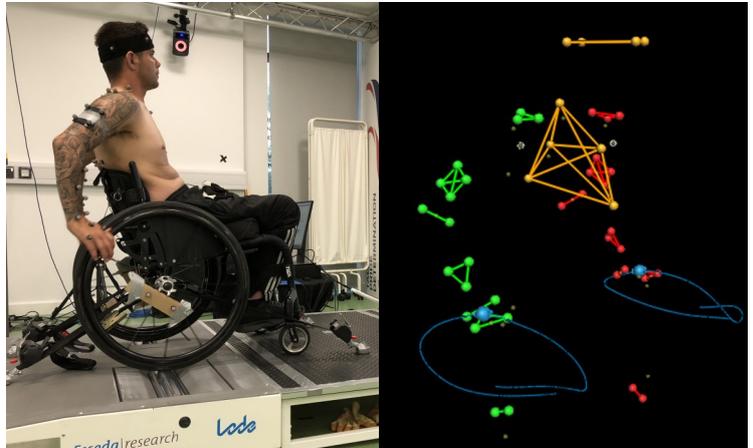


Shoulder Pain and Wheelchair Propulsion by Simon Briley

The presence of shoulder pain can have a significant impact on the independence and quality of life of manual wheelchair users by negatively affecting the completion of everyday tasks at home and in occupational settings. Wheelchair propulsion is a frequently performed task which may be associated with shoulder pain. However, little is known about the association between shoulder pain and wheelchair propulsion technique. Therefore, a number of projects with a focus on developing our understanding of shoulder pain in wheelchair users is taking place including:

- How does submaximal propulsion differ in sports vs day chair?
- How does a fatiguing match simulation affect submaximal and maximal propulsion?

More information on these projects to follow in future newsletters.



Example of markers reconstructed to analyse a wheelchair users upper limb motion during wheelchair propulsion.

Stop Press



2018 has been a busy year for our Director (Vicky), with lectures shared in Korea and the Netherlands.

Dopamine-mediated Increase in Understanding of Physiology and Japanese Culture - a research visit to Wakayama University by Sven Hoekstra



As can be read elsewhere in this newsletter, the symposium “sport and exercise medicine for people with disability”, held at Wakayama Medical University in September this year, was a successful celebration of the ongoing collaboration between the Peter Harrison Centre, its partners in Europe and Canada, and the Wakayama Medical University led by Prof. Tajima and Dr. Kamijo. While the rest of the Western delegation returned home following this event, Sven stayed for another two months in Wakayama to conduct research in the Department of Rehabilitation. After being installed in the dormitory of the university and introduced to the best places to eat ramen, udon and sushi, the first six weeks were dedicated to a laboratory-based experiment on the effects of dopamine on cardiac function, inflammation and metabolism in people with a cervical spinal cord injury. As dopamine is frequently used in the treatment of hypotension in especially the acute phase of a spinal cord injury, the findings of this study can give insight into the health-related side effects of such treatment. Since the researchers at Wakayama have a strong physiology background, a wide range of sophisticated equipment was used during the experiments. This was a fantastic opportunity to learn about these techniques and may feed into future studies performed at the Peter Harrison Centre.

Following the time in the laboratory, it was time to move on to the bread-and-butter of most people within the PHC, a more sport-science related study. Since many years, the group of Prof. Tajima has the opportunity to conduct research at the international

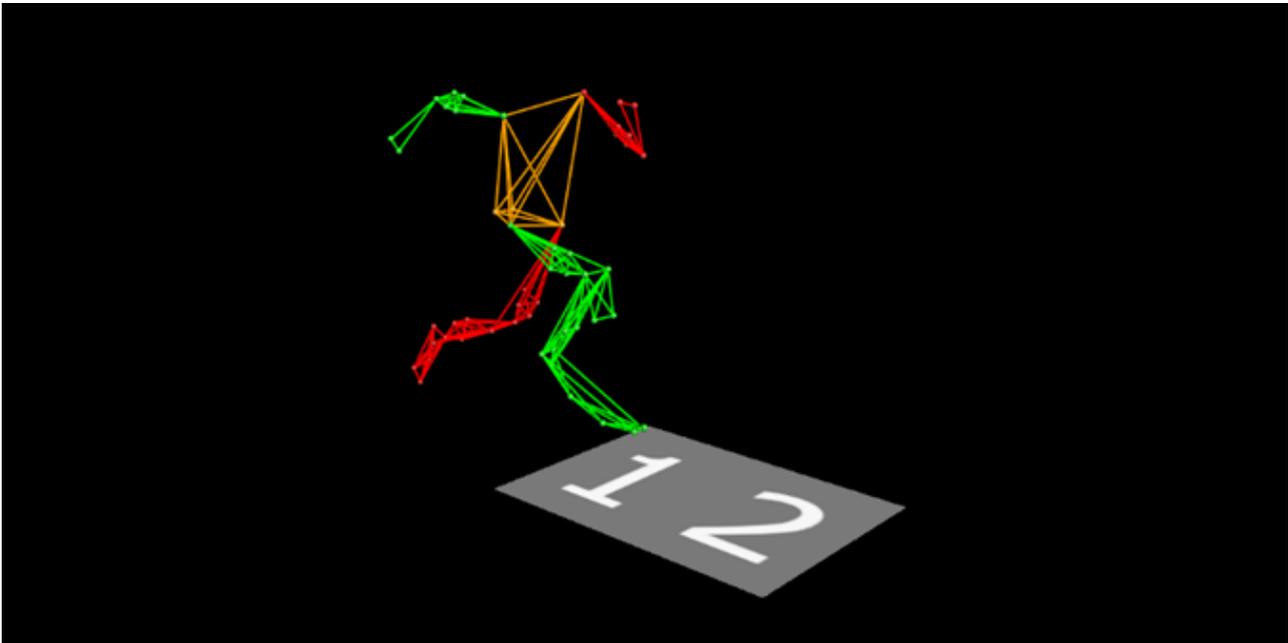
wheelchair half-marathon race in Oita. This has led to many publications, deepening our understanding on the effects of exercise on health in people with a spinal cord injury. This year, blood and urine samples were collected prior and following the race to study the impact of exercise on kidney function of the athletes. Additionally, all participants of the race had scans of their elbow and shoulder taken to study the prevalence of overuse injuries in wheelchair athletes. The results of these scans could also be used by the individual athletes for the treatment of potential issues. A large team of medical doctors and physical therapists had taken the bullet-train to Oita to help with the data collection. Apart from their tasks on race day, most saw this trip as a “school trip for adults” and were happy to get away from the long work days for a little while. This became particularly apparent on the evening before the race, when the sake and plum wine went down like lemonade...

All in all, the two months in Wakayama were a great way to learn more about physiology in people with a spinal cord injury as well as Japanese culture. Additionally, the hospitality of the people is something that does not cease to amaze. This was also the case during my visits to other Japanese universities (in Kobe, Nagoya and Hiroshima), which were a valuable addition to a period in Japan that “tastes like more” (Dutch expression) and hopefully leads to more collaborative projects in the future.



Jonnie Peacock and Sophie Kamlish visit Loughborough for Testing as part of a Japanese Documentary

by Laura-Anne Furlong



In early October Jonnie Peacock and Sophie Kamlish came to campus as part of filming for an NHK (Japan) documentary focusing on how Jonnie became the fastest 100m parasprinter. The PHC was responsible for a biomechanical analysis of his start and 10m sprint performance, focusing on measuring factors such as his ground contact times, forces, stride and step lengths, symmetry of

movement, and the alignment of the blade during ground contact. Analysis focused on how these variables were similar or different between Jonnie and Sophie, with several similarities noted in terms of forces applied and blade alignment during contact. Small differences were noted however between their stride lengths and step symmetry.



December 2018 - "Superhuman Paralympian - Jonnie Peacock" Documentary
> NHK: 14 December 14:00-14:50
> NHK G: 19th December 16:50-17:40
<http://www4.nhk.or.jp/chojin/x/2018-12-14/11/17608/2725022/>

Exercise Promotion Videos for People with Arthritis: A Novel Way of Promoting Exercise Through Stories by Emily Hunt



As part of her PhD research, Emily Hunt has been working closely with people with arthritis to create videos about their stories of exercise. The aim of the videos is to promote exercise to people with arthritis who are currently inactive. Stories are widely used to communicate health information and are a promising intervention to change health behaviours. However, less is known about if stories can be beneficial to promote physical activity and/or exercise. By using a video format, it is hoped that the target audience will be engaged with the story and can relate to the people telling the story. To be effective in promoting physical activity the stories must be authentic, persuasive, and entertaining, as well as being underpinned by theory and research evidence. In her third year of her PhD, Emily has already conducted two previous research studies, the results of which have informed the production of the videos. A template outlining key components of the story was formed using a combination of research findings and behaviour change theory. During a storytelling workshop (based on methods from arts-based disciplines) this template was used as a storyboard to help structure the participants' stories of arthritis and exercise. Once the stories were constructed, Emily worked with the translational scientist team in the NCSEM to

film and edit the videos. The outcome of which is two videos, each approximately five minutes long, that have a strong story and health message about arthritis and exercise. Over the summer, Emily evaluated the use of the videos with patients and health care practitioners to find out the quality (authenticity, persuasiveness, relatability) and practical utility of the videos, such as how these exercise promotion videos can be used in healthcare settings. The findings of this evaluation show the videos to be a promising method to communicate a positive health message about exercise for people with arthritis. Patients noted that they were engaged with the stories and could relate to the characters in the video. Furthermore, healthcare professionals explained the benefit they perceived the videos could have for their professional practice and identified several ways the videos could support clinical physical activity promotion. In addition to the research output the videos will be available to watch via the NCSEM website and distributed via twitter in due course – so watch this space.

To find out more about this project or to enquire about the videos, please contact Emily Hunt (e.r.hunt@lboro.ac.uk).

Special thanks go to Lorraine and Carlyne who have shared their stories to make this project possible.



Congratulations to:

- Ben Stone and his wife Zarah on their marriage last year.
- Ben Stephenson for successfully defending his PhD and submitting his corrections.
- Emily Hunt on her new lecturship post at Brunel University.
- Tom and Terri Paulson on the safe arrival of their baby girl 'Phoebe'.

New Move to Canada! By Jan van der Scheer

Before I start telling you more about my new move to Canada, I would like to say again how much of a fantastic time I have had in Loughborough across the last three years. Dear friends and colleagues, thank you all so much again for taking me on board, helping a tall Dutchman to feel very much at home in the UK and in Loughborough, making me part of the team and the many social events at the PHC, giving me so many opportunities to grow as a person and a professional and – last but certainly not least – the best leaving do I could have wished for!

I am delighted to still be part of the team as a Visiting Fellow. It is most exciting to work with various PHC members on international projects, such as recommendations for measuring body composition of people with spinal cord injury in clinical and sport settings (see the previous newsletter) and developing guidelines for functional electrical stimulated cycling for people with spinal cord injury.

But obviously I am also keen to update you about my new move to Canada! I am most excited to be here at the University of British Columbia (UBC) in the beautiful Okanagan region, which is renowned for its sunshine, lakes, mountains, skiing and believe it or not, its wine. I have been given the opportunity to start working with PHC-visiting Prof. Kathleen Martin Ginis. You might know her from the many collaborative projects she has been working on with PHC members, including the International Spinal Cord Injury Exercise Guidelines.

The work at UBC Okanagan provides me with a fantastic opportunity to dig deeper into top-level research, knowledge translation and



international collaboration in a new, exciting role as a Research Associate that is part of the recently started Chronic Disease Prevention Program led by Prof. Martin Ginis:

(<https://news.ok.ubc.ca/smp/2017/10/19/ubc-launches-program-to-advance-chronic-disease-research/>). This program is about improving local health care for people with chronic disease through community-based research and knowledge translation, and about advancing the international research field on this topic. Working closely with Prof. Martin Ginis, my research role will focus on the physical and mental benefits of physical activity for people with neurological disabilities. Prof. Martin Ginis, other UBC colleagues and I, have for example started working on new projects for people with spinal cord injury. Part of that is writing research grants and I am excited to say that we just heard that the first one we submitted has been granted!

Next to that, I am also very dedicated to keep working on international collaboration, for example following on the work of the International Spinal Cord Injury Exercise Guideline. Hopefully in the coming years we can keep building on the success of the various international projects that the PHC has been key to, and start thinking about new projects.

There is so much to learn from each other and obviously together we stand stronger and are able to have an even bigger impact on the lives of the people we do our work for and with.

Continued...



In the new year, I am looking forward to update you on other new developments here on this side of the Atlantic. The new laboratory here at the campus is just about ready, giving us fantastic opportunities for community engagement and exercise testing/training for people with a disability.

At the time of writing, I am also very much looking forward to visiting the PHC in December. There is much for us to do: the big RehabMove conference in the Netherlands, an international panel meeting for the functional electrical stimulation

guidelines project I mentioned above, continue the work on the body composition project and of course catching up with many friends and colleagues!

All in all, a great start here for me at UBC Okanagan with Prof. Martin Ginis and the colleagues. I am very grateful for this opportunity, and also for the Visiting Fellowship with the PHC within the School of Sport, Exercise and Health Sciences at Loughborough University. More stories to follow later!

Great Britain Wheelchair Rugby Talent Development Programme: an update by *Conor Murphy*



During the month of December, the Great Britain Wheelchair Rugby Talent Squad tested their skills as they took part in a mini-tournament involving the Great Britain elite squad. On a monthly basis over the year of 2018, the Talent athletes have been taught the fundamentals of elite level wheelchair rugby, headed by Darren Matthews (assistant GB coach) and Alan Ash (5-time Paralympian). In addition, as a result of the collaboration between Great Britain Wheelchair Rugby and the Peter Harrison Centre, the athletes have been continuously monitored with various court-based assessments and laboratory tests, such as VO_{2max} and lactate threshold determination testing. With this support, the Talent athletes were keen to show off their new-found skills and impress on a stage they hope to be a part of in the future. The tournament was composed of four teams, including a mix of both elite and talent players, played with a round-robin format where 1st/2nd and

3rd/4th playoffs on the Sunday. Surprisingly, at the end of day one, three teams were level on points. The final on Sunday was a head to head between the teams captained by Jamie Stead and Chris Ryan, a close game, 38-41, but it was the GB captains' team that came out on top in the end. Importantly, this was an opportunity for the Talent players to display what they have learnt over the past year as an outcome of the contribution from Sport England, and the PHC, with its ongoing support of upcoming athletes in disability sports. The impact was clear, as impressive performances were on display highlighted further by talent players receiving both the runner-up and player of the tournament awards, those players being Joshua Tudge and Luke Collier, respectively. The Talent players now have a busy new year ahead with regional training sessions and training camps in preparation for the 3rd Annual Development Tournament which is due to be held in Germany during the back end of April 2019.



Behind the Scenes at the School Games National Finals

by Lesley Sharpe and Janine Coates

Late summer saw Loughborough University play host to the 2018 School Games National Finals, organised by the Youth Sport Trust. The School Games is an inclusive multi-level national school sport framework, which provides opportunities for all school children attending registered schools to participate in competitive sport. The National Finals represents the most talented young people in the UK who are selected by their sports' National Governing Bodies to compete at this elite event. Indeed, several Paralympians, like Ellie Simmonds, competed at this event before later competing on the world stage. The 2018 finals were the largest to date as over a thousand athletes competed at the highest level of youth sport across 11 different sports, including five inclusive competitions (athletics, wheelchair basketball, wheelchair tennis, cycling and triathlon).

As part of the Finals this year, Loughborough University's School of Sport, Exercise and Health Sciences worked closely with the Youth Sport Trust to have a presence at the event to share some of the relevant research carried out in the School of Sport, Exercise and Health Sciences with athletes, parents and mentors. Janine Coates co-ordinated a PHC stand in the Athlete Lounge where various resources, like the Fit For Life information booklets and Wheelchair Selection factsheets, were made available and were well-received.

Further, Lesley Sharpe, a PhD student at Loughborough University, and member of the Peter Harrison Centre is focusing her studies on the inclusion in sport at the School Games and so took the opportunity to volunteer.



Lesley shares her experiences as a volunteer: “On a rather early Saturday morning I made my way to the university’s Netball centre for the second day of the wheelchair basketball competition. As soon as I arrived, I felt the atmosphere, palpable with excitement for the day ahead. The athlete area, busy and loud and complete with the GBR men’s world championship trophy, sizzled with an undercurrent of anticipation.

My experience as a volunteer afforded me the opportunity to experience the event from various perspectives. I organised tickets and photo passes for proud parents and passionate supporters, supported catering operations in the athlete backroom and ferried all kinds of equipment. However, my most rewarding experience was supporting the event manager courtside. I sat just to the side behind the court, in arguably the best seat in the house for the second day of competition.

I was struck by two things. First was the incredible standard of the competition, intense and fiercely contested, the pace was frenetic and the ability and skill on show were nothing less than awesome. Second was the infectious atmosphere that filled the venue, and the weekend. An equal mix of serious sports competition and party, the support was thunderous. Cheers for good play came from all supporters regardless of affiliation and the calls for defence had me chanting (inconspicuously) along. England North were the overall winners of the 2018 School Games National Finals wheelchair basketball competition beating Scotland to the gold in a 64-41 victory.”

Further results from the event can be found here: <https://www.schoolgamesfinals.org/>



Meeting the Researchers in Nordic Sports in Trondheim, Norway by Christof Leicht

No, I do not usually dress like this (it's me on the very left)... However, for the most festive occasions the Loughborough University gown comes out of the cupboard. The occasion this time was the final exam of the doctoral thesis of Julia Baumgart (middle) who is doing her work in Trondheim, Norway. Julia is a pioneer in a couple of ways – the first researcher to investigate Paralympic Sport research at her University in Trondheim, and the first researcher to investigate Paralympic sitting sports, such as Nordic skiing or sledge hockey, in closer detail (and she climbed Mt Kilimanjaro, too!). I had the pleasure and honour to examine her work, together with Prof. Maria Hopman (second left) – a great opportunity to meet this experienced researcher for the first time, as her work in spinal cord injury has laid the foundation of some of our research at the PHC.

Trondheim is a great place for many reasons. For starters, I only met nice people during my visit, even the bus driver gave me a special

fare when I was out of cash. Secondly, as the Norwegians take their winter sports very seriously, there is a wealth of knowledge in the Sport Science of these sports. Øyvind Sandbakk, the leader of the research group that Julia Baumgart is part of, is interested to further investigate Paralympic Sport Science, hence my involvement this year. Trondheim and Loughborough are in contact regarding future work together, so... watch this space!



Stop Press - Get Busy Living Centre

- The GBL Centre opened this year see <https://www.matthampsonfoundation.org/what-we-do/get-busy-living-centre/>
- PHC and Loughborough University staff members visited over the summer. What an amazing project venture! We wish all involved our best wishes for 2019 and we hope that we can explore some projects together.



Visiting from Brazil by Gabriel Espinosa



Undoubtedly this was a significant year for me. I could realise a dream of mine: studying abroad in one of the best sports science centres in the world. I am currently in the middle of my PhD at the Fluminense Federal University (UFF) in Brazil, in the Laboratory of Biodynamics coordinated by Dr Jonas Gurgel where I study methodological aspects of performance assessment and exercise prescription. We know that exercise is beneficial for all people by preventing many chronic diseases. Moreover, exercise training is the best way to improve sports performance in athletes. In the first case we care more about the health condition and the effect of exercise on special clinical conditions. With athletes we are looking for an optimal stimulus to obtain the best results. Therefore, in both scenarios we need to be accurate when determining the specific

loads for training, which is the reason I am so interested in this topic.

In previous studies of our group in Brazil we have shown that some factors such as the duration and type of protocol can change the results of any exercise testing. During my 6-month stay at the PHC I am working with Dr Christof Leicht on projects related to my PhD thesis in which we are examining different protocols to develop a test that can be more accurate for endurance training prescription. We are testing highly trained cyclists who visit the laboratory five times to do a range of experimental tests. With our research we are creating new tools in order to help athletes and sports professional to get more accurate exercise prescription and better performance. With my visit to Loughborough University we also hope to strengthen the partnership between the laboratories.



Stop Press

We currently have Thomas Rietveld, an MSc student from the University of Groningen staying with us for several months working on a project with the PHC and the LTA. Thomas' project will be looking at the effect of different tyre pressures on mobility performance across different surfaces and will be supervised by Dr Barry Mason (PHC) and Dr Riemer Vegter (University of Groningen).

New grants/projects

- We are looking forward to working with Dr Emma Beckman (University of Queensland) and her team on a new project in 2019 on classification and wheelchair tennis. This project will be in collaboration with the International Tennis Federation.
- Congratulations to Dr Janine Coates and Dr Carolynne Mason who have been awarded a contract to evaluate the roll out of a disability hockey programme (Flyerz Hockey) for the charity Access Sport (<https://www.accesssport.org.uk/flyerz-hockey>).

Q&A session with Caz Walton...



Could you give us a brief summary about yourself, career and your current role?

I have been involved in Paralympic sport since 1964 when I was called into the GB Team at very short notice to replace a sick team member. The Games in Tokyo were my first taste of things to come. I won two gold medals, one of which was for the first ever track event and I was hooked. I was lucky enough to be selected for a further seven Paralympic Games and to win 10 gold medals in total. In 1996 I went to Atlanta as fencing Team Leader, a role that I was to repeat in Sydney 2000 and Beijing 2008. I left BT in 1995 and joined BPA, a job I love and that has seen me be a staff member at a further three Paralympic Games, Athens 2004, London 2012 and Rio 2016. My current role within the organisation is to support the Classification Manager, Iain Gowans on clinics, workshops and a variety of other classification projects.

How did you get into Paralympic sports, and how did that evolve into almost 6 decades of competing?

Following a long period in Great Ormond Street hospital as a child and intensive rehabilitation, one of the physios suggested that I travel to Stoke Mandeville to see what they were doing there. The Paralympic movement was beginning to take form and although I had only done a little swimming at this stage, once I had competed at National level at Stoke, there was no going back.

Would you mind sharing a career high point and a career low point?

The lowest point in my Paralympic career was not medalling in the 1984 Games. This was for me a home Games at Stoke Mandeville and I wanted so much to bring gold home for the team. It was not to be but my career continued and I have two high points to wipe away the disappointment of 1984. The first was winning gold against the odds in the epee competition in Seoul 1988 and the second was the huge honour of being part of the London 2012 Team and coming into the stadium at the opening ceremony to the roar of the home crowd. It still moves me to tears when I remember the emotion of that moment.

Could you tell us more about Paralympic sport and how it has changed since you were first involved?

The change in Paralympic sport since I was first involved is enormous. Not only in the way that the movement has evolved with huge increases in the number of athletes and countries taking part but also in the public and media awareness, due in no small part to the success of London 2012, the professionalism of the athletes, the evolution of sports equipment (can you imagine doing track in your day chair now?) and the impact of funding & sponsorship.

Continued...

As a continuation to that question, what are your thoughts on para-sport research and its application to competition?

I welcome the research going on, especially in the area of classification. Applied correctly it can only enhance and improve Paralympic sport going forward.

What is your role within the BPA, could you tell us more about the work of the BPA?

I administer the Paralympic Gold Club, a benefit system for funded and talented athletes but the majority of my role is in classification. Administering workshops, classification clinics, supporting projects and classification code implementation and other initiatives which help and standardise good practice. Great Britain is now a world leader in classification expertise and I consider myself privileged to be involved in that process.

What are your thoughts on the preparations leading into Tokyo 2020 so far?

An enormous amount of work has gone in to preparation for the Tokyo Games so far to enable athletes to compete to their optimum level in what is a very different environment i.e. climate, culture, time zone etc. It is possibly the most challenging Games that we have had to tackle but good preparation eliminates many issues and both sports and BPA are working hard to ensure that the best possible structure and organisation is in place for athletes and support staff.

Who would you most like to have dinner with?

Difficult choice to make so I'll name more than one person: Chris Hoy because he's such a driven, professional athlete and a great example to athletes in any sport. Mahatma Gandhi who changed the world by his example of peaceful protest and Edward I, who was a fascinating character in a historical era that I find enormously interesting.

What is your favourite movie?

The Lord of the Rings Trilogy. Sheer escapism, happy ending and some very good looking men.

What is an inspiration quote/ or advice you have been given?

There is always more time than you think there is. In a difficult situation always step back, even for a few seconds before making a decision.

Best holiday destination?

New Zealand. Beautiful country and lovely people although Canada runs it close.

Vicky Tolfrey commented 'Caz is a lovely person to be inspired by. She has a very confident yet modest manner about her personality. Over the many years in Paralympic Sport I have learnt a lot of wisdom from her'.

Below is a photo of myself with Caz and Kim Brinkworth reminiscing about old days, and our shared room in London at the Paralympics, where I disturbed Caz at some unearthly hour in the morning.



Project Theta by Ben Stephenson



Theta (θ) – denotes temperature in SI units

Project theta is an interdisciplinary project to support Paralympic athletes & sports be best prepared to deliver in the Tokyo games environment. The project is jointly funded by the English Institute of Sport and the Peter Harrison Centre whilst I sit across both parties as the project lead physiologist and research assistant, respectively.

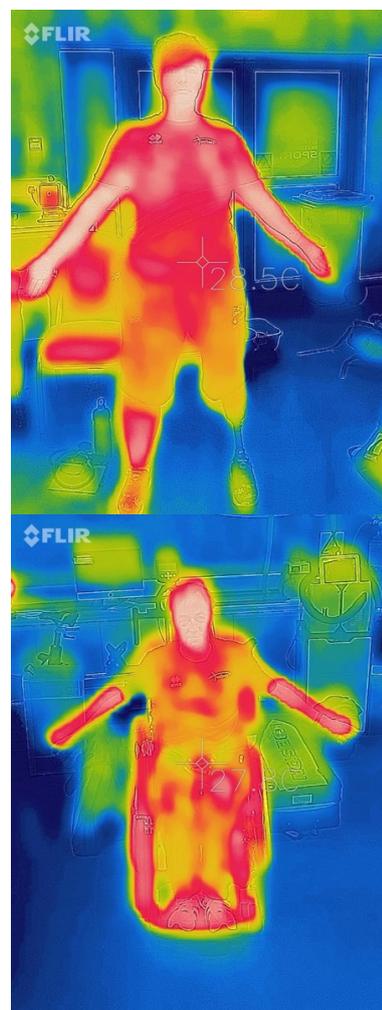
The project has four primary objectives:

- To stratify the risk of the Tokyo environment on health and performance in Paralympic athletes and sports.
- Assess the tolerance of high-risk athletes to expected Tokyo conditions and demands, both physiologically and cognitively.
- Develop impairment-specific guidance for heat alleviation strategies appropriate for all levels of risk.
- Project group members support sport-specific interventions through project requests.

The project first created a risk-stratification matrix to assess the likelihood of the expected Tokyo environment posing a threat to health or performance for sport cohorts. Resources have since been created to highlight why certain impairment-types may be predisposed to heightened thermoregulatory strain in the heat whilst

also providing contraindications to current able-bodied heat alleviation guidelines. These resources are to be used with sports to provide greater Paralympic-specific context to available information for Olympic athletes.

Additionally, the project group have begun individualised heat tolerance testing with sports. Archery and table-tennis both underwent testing with identified athletes performing sport and cognitive tests during or after heat exposure. This is to be continued with other identified high-risk sports to then produce tailored interventions and alleviative strategies.



Thermal images of Paralympic archers after heat exposure with an example of extremity cooling.

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New European website on exercise guidelines for people with a spinal cord injury

www.sciguideines.eu

#SCIEurope

The Peter Harrison Centre and its European partners have recently launched a new European website highlighting scientific exercise guidelines for people with a spinal cord injury (SCI). The guidelines were developed by an international group of 29 researchers, clinicians, community organisations and people with SCI. The new website www.sciguideines.eu has resources in six languages to aid in disseminating this information across Europe – English, Swedish, German, Spanish, Italian and Dutch.

As well as clear and concise information on the guidelines themselves, an infographic is also available in all the languages which outlines the process behind the development of the guidelines. Videos can be viewed highlighting what the guidelines are and why they are important. These also include animations which make the guidelines message easily accessible.



Produced by Tom O'Brien and Vicky Tolfrey

Thanks to all the contributors

We hope you enjoy learning about the Centre and find the links to the website and other resources useful. If you have any feedback or would like to contact the Centre please email: phc@lboro.ac.uk or contact the PHC Director at V.L.Tolfrey@lboro.ac.uk

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