

# Revolutions

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**'Fit for Life & Sport' resources out now.....**

Selected **highlights** in this issue:

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 **Loughborough  
University**

Peter Harrison Centre for Disability Sport

## Directors Foreword by Prof. Vicky Tolfrey



A lot happened in the second part of 2013 at a considerable pace. Our day job was no less demanding but we have spent time focusing on the longer term, taking time to identify themes and likely directions. In terms of publicity our research is currently showcased in 'The View' Loughborough University's Research magazine, and I have just read a tweet posted from Johan Cruyff commenting on the findings of our Wheelchair Tennis Development Fund project.

We have established new collaborative research links in Japan (pg. 9), produced a BASES Expert Statement and completed the first phase of the Coca-Cola Foundation project with the 'Fit for Life & Sport' educational resources being launched at ParalympicsGB Sports Fest (pg. 12-14). I would like to congratulate Dr. Tom Paulson for successfully defending his PhD and share with you the good news that Anthony and Mel/ Brett and Cassie have new family additions with the safe arrival of baby boys (Rubén and Edward).

So as we move forward in 2014, I welcome our new members (next page) and Professor's Lucas van der Woude and Kathleen McGinis (pg. 15-16) as Visiting Professors to the School of Sport, Exercise and Health Sciences (and our Centre). Moreover, in preparation for our move to the National Centre for Sport and Exercise Medicine I look forward to working through a strategy that underpins our impact into outreach activities and funding of the 'Performance Health Strand' with Prof. Maureen McDonald (who is on sabbatical leave from McMaster University).

Vicky Tolfrey

Prof. Vicky Tolfrey (Director)

## Richard Whitehead 40 Marathon Challenge by Dr. Louise Croft



Just over half way through the unbelievable journey of 40 marathons in 40 days and Richard arrives at Ilkeston Leisure Centre on a wet Friday morning. We are 16 km away from Nottingham and his home town so he is in a great mood, even after all the pain of the Peak District and the hard slogs over the hills to get here.

The run is incredible. We are on the roads and traffic is stopping for us, beeping their support and waving to us. Rich storms ahead helped by music from the support car and we follow, laughing and joking over the 10 km we are running. The support team are wonderful and have helped Richard each day get through his marathons. We get to the 10 km mark, soaking wet, tired but in quiet realisation that this is just one tiny stretch of Richard's momentous effort to run the length of the country. We leave him to carry on his journey to Nottingham. Richard is so passionate about proving that having a disability should not stop you achieving anything you wish to do. Well, he has certainly done that, and in the process raised a phenomenal amount of money for Scope and Sarcoma, two charities close to his heart. A huge congratulations Richard, you are an inspiration!

The PHC congratulate Richard with this tremendous feat and look forward to working with him as the ambassador for the 'Fit for Life & Sport' Amputee Guide (pg.12).



## Stop Press

- Congratulations to the Director of the Centre, Vicky Tolfrey who has recently been awarded a Personal Chair, with an approved title of Professor of Applied Disability Sport.
- Dr. Brett Smith has been invited to be a consultant on the Social Science and Humanities Research Council funded project 'Examining the role of Paralympic sport in challenging negative stereotypes of disability.' The research project is led by Prof. Amy Latimer-Cheung (Queens University, Canada).

## New staff and student profiles



### Emma Richardson

PhD student  
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Emma Richardson joined the PHC Psycho-Social Health and Well-being strand in October 2012 after being awarded the 'Wheelchair Tennis Development Fund' bursary to support her MSc studies. She is now studying for her PhD under the supervision of Dr. Brett Smith. Emma's qualitative research will examine how being trained as a fitness instructor can improve the quality of life of people with a spinal cord injury. Working with Aspire, she will investigate the psychosocial impact this has on the individual, improvements in relationships and how the attitudes towards disability of gym managers, administrators, able-bodied gym goers and instructors is impacted.

Although her background is in competitive sport, Emma originally became interested in disability studies through her undergraduate degree after volunteering at various sports events for people with learning and/or physical disabilities. This interest developed in her MSc year when she investigated the impact of wheelchair tennis of psycho-social well-being on physically disabled people in developing countries. This work was done in collaboration with the International Tennis Federation's Wheelchair Tennis Development Fund (pg. 18) who published this report in the hope of gaining more funding for wheelchair tennis in developing countries.

### Aneka Debski-Antoniak

MRes student  
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Aneka Debski-Antoniak is associated with the PHC as of October 2013 after being awarded funding from the PHC to support her MRes in Human Biology. Working with Prof. Vicky Tolfrey and Dr. Katherine Brooke-Wavell, her MRes studies will focus on body composition, in particular bone health, in elite wheelchair basketball and rugby players. Her final year project will compare differences in body composition between the two sports.

Aneka graduated from Loughborough University in Summer 2013 with a BSc in Human Biology, with her dissertation investigating changes in body composition and nutrition in elderly males following one of three randomly assigned exercise interventions.



### Dr. Andrea Burdon

Postdoctoral Researcher

Having recently completed her doctoral work at the University of British Columbia (Canada), she is very excited to be joining the Psycho-Social Health and Well-being team at the PHC. Her postdoctoral research, funded by the Social Sciences and Humanities Research Council of Canada, will explore the sport experiences of youth (ages 12 to 19) with disabilities. The impetus for this research is a desire to understand how youth with disabilities relate to the Paralympic Games, the Paralympic Movement, and the numerous disability sport legacy programs established in the wake of the 2012 Paralympics. The motto of the London Games was '*Inspire a generation.*' Using digital storytelling methods, this project will ask youth with disabilities a simple question: Were you inspired by the Games? Through a series of instructional workshops and drop-in work sessions, participants will receive assistance with digital storytelling methods/techniques. Using text, video, photography and other digital media, participants will be asked to create short vignettes about their experiences with sport and about their perspectives on the Paralympic Games. These digital stories will be published in an online gallery and on a YouTube channel and will be further displayed and broadcast in community facilities and at local events.

Her interest in this research stems from her own experiences as a nordic/biathlon guide for a visually impaired athlete at the 2010 Vancouver Paralympic Games. It was while training and travelling with the para-nordic team that she designed her doctoral research project on the use of blogging and social media within the Paralympic Movement. Throughout the project, she collaborated with members of the Canadian Paralympic team to create and host a blog that critically discussed and debated 'hot topics' broadly related to the practice of disability sport. Their blog can be found at [www.athletesfirst.ca](http://www.athletesfirst.ca).

### Dr. Patrick Wheeler (MD)

Senior Lecturer/Research Fellow



Dr. Wheeler holds a portfolio of roles; including as a Consultant and the current Head of Service in the Sport & Exercise Medicine Department, a Senior Lecturer and Visiting Fellow at Loughborough University and as a Clinical Teaching Fellow at Bath University. He previously worked for the English Institute of Sport for seven years until finishing in June 2013 to concentrate on his clinical research commitments. In addition to these commitments Patrick works as the Chief Medical Officer to British Triathlon overseeing the medical provision to funded athletes in the Olympic and Paralympic disciplines. In this role he has been interested in various aspects of performance medicine, including injury and illness prevention strategies.

Patrick's research interests are broad as he has sought to explore the various clinical aspects in which he has worked. These research interests include his current PhD exploring the medical management options for tendinopathies including the use of novel agents, as well as collaborative working with Gatorade Sport Science Institute looking at the assessment of body composition of elite athletes, working with colleagues at Loughborough University looking at the cost of Sports Injuries, and working with the British Heart Foundation Centre for Physical Activity & Health looking at Physical Activity readiness and screening. Patrick is keen to explore other avenues for collaborative research both in clinical and academic domains.

## Coca-Cola Together We Move Conference by Dr. Anthony Papathomas



The inaugural Together We Move conference represented the first gathering of all physical activity and health initiatives funded by the Coca-Cola Foundation. The invite-only event was hosted in London with attendees arriving from 22 countries across Europe. Anthony and Terri Graham represented the PHC in what was an opportunity for sharing best practice in relation to promoting physical activity, exercise and sport for the purposes of health and well-being.

Of all the exciting initiatives on show, only the PHC project had a specific focus on people with a physical disability. This was important as it allowed Anthony and Terri the opportunity to communicate the Centre's goals to individuals who work outside of disability sport. In terms of promoting and disseminating knowledge, the value associated with speaking to a wider audience cannot be underestimated. By networking

with individuals who are NOT experts in disability sport, the positive work of the PHC is guaranteed to reach organisations it would not otherwise reach.

The conference itself was an interesting mix of corporate styled meetings and presentations, and public sector initiatives. It was fantastic to see these two very different worlds – the public sector and the private sector – work in harmony with a view to learning from each other's expertise. One speaker, Kelly Murumets, spoke of her former life as a corporate executive, in comparison to her current life fronting a charitable physical activity initiative in Canada. Whereas her business experiences had been much freer with money, her charitable activities taught her how to make very little, go very far. It was a good lesson for those working in disability sport where financial support can often be tough to source.

Continuing the collaborative theme, there were many fascinating similarities between the world of corporate marketing and the PHC's Project INSPIRED research study. A presentation entitled 'Insights on Communicating' by Coca Cola's Iberian Marketing Director Ricardo Sandoval, emphasised the value of 'telling a human story' and his belief that 'emotions drive action.' These ideas are a perfect fit with Project INSPIRED where Anthony and Dr. Brett Smith are testing the power of personal stories to motivate spinal cord injured people to be more physically active (pg. 20). Based on interview data gained from over 30 male and female spinal cord injured people, Brett and Anthony are writing two powerful short stories that tell of a spinal cord injured person's experiences of overcoming barriers to live an active life. The stories will be used as a source of 'information and inspiration' and their success in changing people's behaviour will be tested through an experimental study. Brett and Anthony will be able to provide official scientific evidence as to whether or not the human story approach really works. It is a finding that will interest the corporate world as much as the scientific one.



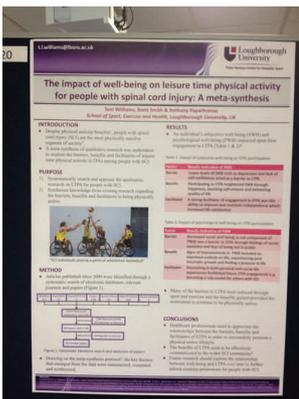
## Well-being 2013 Conference by Toni Williams



This July I attended the Second International Conference Exploring the Multi-dimensions of Well-being hosted and organised by Birmingham City University. I was attending the conference to present the findings from the first study of my PhD. Rather than starting my research with a standard literature review, I embarked upon a systematic review of literature and a meta-synthesis of the findings on physical activity and spinal cord injury. In particular I focused upon the barriers, benefits and facilitators of being physically active and how these results could be used by healthcare practitioners to promote a physically active lifestyle. In line with the conference theme, I centred my poster on the well-being results of my study. This was entitled: The impact of well-being on leisure time physical activity for people with spinal cord injury: A meta-synthesis.

The two day conference consisted of both lectures and interactive workshops that aimed to advance knowledge by exploring the different perspectives of well-being. The keynote talks were excellent and the speakers ranged from academics in public health, art and design, to include speakers from organisations dedicated to improving the well-being of individuals and communities. One of the more heart-warming presentations was by Dilys Price, founder of the Touch Trust charity. Dilys' work in dance and creative movements aims to improve the lives of people with profound disabilities. She also conducted a workshop for personal well-being and invited us to talk and draw our future dreams and aspirations, as well as physically interacting and dancing with other attendees. This was a little strange, and uncomfortable at first. But it wasn't long before everyone was letting their bodies move to the music and laughter filled the room. The aim of the workshop was to demonstrate creative ways to improve well-being and I think this was achieved (for most of us!). Another novelty was the inclusion of the conference poet ChrisJaM who opened and closed each day with a well-being lyrical masterpiece. We wrote a poem on narratives of illness and disability which Chris included in the closing session.

The conference gave me the opportunity to discuss my research with academic and healthcare professionals and critically debate the complexity of well-being. I was fortunate enough to engage with Dr. Giuliana Costa (Assistant Professor of Sociology, Milan) and Dr. Scherto Gill (Guerrand-Hermès Foundation, UK) on narratives of well-being which I will be exploring in the latter part of my PhD. Overall, the conference allowed me to experience new approaches to well-being and network with researchers and practitioners outside of my subject area. I hope to attend the next Well-being conference with results from my current research on activity-based rehabilitation for people with spinal cord injury.



## **11<sup>th</sup> Symposium of The International Society of Exercise Immunology by Dr. Tom Paulson**

Having attended the 10<sup>th</sup> ISEI symposium in 2011 as a 1<sup>st</sup> year student, a target throughout my PhD was to have a free communication presentation (rather than a poster) at the 2013 symposium to be held in Newcastle, Australia. The ISEI is a small society of very knowledgeable members and a wide scope of interests including respiratory and mental health, as well as genetics and exercise immunology. Over the years, the work of Loughborough University and the PHC has been highly commended by the Society for its novel research exploring the effects of spinal cord injury on immune function and health, a population group in which exercise prescription has the potential to greatly impact upon health and well-being.

This year's conference focused on 'Exercise prescriptions for health', and with the support of the PHC and the School of Sport, Exercise and Health Sciences, I was fortunate enough to travel to Australia and present the final chapter of my PhD thesis. My presentation, entitled 'Releasing the anti-inflammatory potential of paralysed skeletal muscle', allowed me to talk about the research supported by the Coca-Cola Active Healthy Living Grant and Neurokinex. I was also able to present some preliminary findings from our on-going collaboration with Prof. Thomas Janssen (Vrije Universiteit, Amsterdam) and his research team exploring the effects of 16 weeks hand cycling or hybrid exercise training on cardiovascular health in participants with a long-term spinal cord injury. The conference provided a great opportunity to share ideas with academics from around the world and take part in discussions that I hope will lead to future international collaborations. I was made to feel very welcome in Newcastle and I was lucky to have time before and after the conference to explore some of the beautiful sights of Australia! Next stop for the 12<sup>th</sup> ISEI symposium is Vienna, Austria in 2015, where I hope we have a strong PHC representation once again!

## **American Psychological Association (APA) Annual Conference 2013 by Nick Caddick**



In early August 2013, I was fortunate enough to be offered funding through my temporary contract at the European Centre for Environment and Human Health to attend and present at the world's largest psychology conference in the tropical island paradise of Hawaii. I was part of a symposium on 'Surfing and Psychology' in which I presented findings from my PhD research so far. I was able to use the symposium to promote the message that surfing can have a positive influence on the well-being of combat veterans through facilitating a sense of 'respite' from PTSD (pg.21), and to network with other 'scholars of surf' from around the world. The conference was a key opportunity to promote my research to an international audience and receive feedback from members of the world's largest and most influential community of psychology researchers.

The journey to the heart of the Pacific Ocean also enabled me to gain further experience of the sport on which my research is based. Surfing at Waikiki beach was an unforgettable experience. The long and gentle waves provided the perfect opportunity to hone my board skills, and the warm sea temperatures offered a welcome contrast to the finger-chilling experience of surfing in Cornwall in February. Thanks to the European Centre for Environment and Human Health (based in Truro, Cornwall) for funding the trip.

## **Research and the War Veteran by Nick Caddick**

'Research and the War Veteran' was a fantastic one-day conference organised by Kevin Spruce and Dr. David Jackson of the veteran-led organisation Veteran-to-Veteran (Turning it Around). I attended the conference in order to present further findings from my PhD research exploring the 'social side' of Surf Action. My presentation highlighted the influence of social relationships upon the well-being of combat veterans and explored the relational dynamics which were a key feature of my participants' stories of their experiences at Surf Action. The relational focus of my presentation fitted in perfectly with the aim of the conference to explore the 'place of the war veteran' within society.

Two inspiring and emotional talks were given by the conference organisers, David and Kevin, who discussed their own experiences of leaving the forces and trying to integrate back into civilian society. They both touched on some crucial issues including the conflicting identities of 'soldier' and 'civilian' that veterans have to negotiate throughout their post-forces lives, and the continuing significance of 'remembrance' in their lives. The conference closed with a screening of David Jackson's strong and emotive film 'Seven Days Down South: A War Story', which features David returning to the Falkland islands where he experienced profound personal losses over three decades ago. Overall, the event was one of the most interesting and useful conferences I have attended so far, and I will be keeping a look out for future events organised by David and Kevin.

## Lionheart Challenge

On 7<sup>th</sup> October, five members of the PHC got up at the crack of dawn to travel down to Wembley Stadium to assist with the Southern Regional Final of the Lionheart Challenge. The Lionheart Challenge is a National Enterprise programme, chosen as a National flagship by the National Learning and Skills Council. Students in years 9-11 partake in a high impact business challenge over one day. The teams with the help of a Business coach must comprise a comprehensive business proposal to be delivered to the other teams, judges and experts in marketing, finance and the challenge theme. The PHC's involvement in this event was due to the challenge theme; 'to conceptualise, design and create a product or device which will enable many more disabled people to actively participate in sport.'

Members of the PHC attended the event to act as theme experts (see photo) and students were able to ask questions and pose ideas to decipher whether their product/device idea would be appropriate for disabled people. After initial, sometimes more far-fetched, ideas the teams finalised their ideas producing a computer mockup of their product, plus a full marketing and financial solution. It was great to see such enthusiasm from the students, with some inspiring ideas, mainly the use of sensors for the visual or hearing impaired. Not only did they have limited time to complete the challenge but also the majority had very little prior knowledge of disabled sport, making the task even more difficult.



## Paratriathlon World Championships

On Friday 13<sup>th</sup> September in Hyde Park, London, Paratriathletes from around the world battled it out to become World Champion. Since being announced as a Paralympic sport in Rio 2016, the sport has grown in numbers and the standard of competition is being to increase. Great Britain have already had great success this year with 12 medals won at the Europeans in Turkey. So the squad were eager to impress again on a greater international stage.

Prof. Vicky Tolfrey, Dr. John Lenton and I were luckily enough to be given VIP tickets to the event through our sport science support provided to the squad over the last year. Unfortunately the weather was not on the athlete's side as wind and rain provided an additional challenge for all competitors. All seven classes were competing from TRI 1 to TRI 6b in male and female categories. These classes are set to change at Rio 2016 with research currently being conducted by a team of researchers commissioned by the International Triathlon Union (ITU) into the classification system of the sport. One of these researchers, Dr. Javier Martinez Gramage stayed at Loughborough for a few days on route to the World Championships for data collection and contributed to a small workshop that was organised by the PHC. His results and conclusions are to be passed onto the International Paralympic Classification Committee in due course. Similar to classification in any Paralympic sport, there is sure to be plenty of debate surrounding the new classification system that may result from this work.

Despite the weather, spectators were in high spirits, providing encouragement to competitors throughout the races. Similar to the Europeans, GB had another successful day winning medals in nearly all the races, with a total of 15 medals, 6 of which were gold. The majority of the athletes are still very new to the sport, with backgrounds in one of the disciplines. Despite this, there looks to be some exciting medal prospects for Rio 2016, though this is of course dependent on the classes allowed to compete.

Congratulations to all the GB Paratriathletes on their successful year and we look forward to continuing our work with you.



Read about the Paralympic Pioneers of the PHC in Loughborough University's View magazine, including some great photos of paratriathlete Phil Hogg and wheelchair rugby player Kylie Grimes.

Prof. Vicky Tolfrey and I have established an exciting working relationship with England and Wales Disability Cricket. As part of this relationship we will deliver a nutrition education programme at four new regional development sites (Manchester, Northampton, South Croydon, Reading). Many of the players (physical disability, blind, deaf and learning disability) have been given the opportunity to attend one of these sites following the identification of their potential talents in the domestic game.

The programme will be delivered by 4 MSc Sport and Exercise Nutrition or Exercise Physiology students from Loughborough University under the mentorship of more experienced practitioners. The students will gain invaluable experience working as part of a wider sport science and coaching team in the field of disability sport.

The programme was launched in October 2013 and each site will meet once a month. The aim of the nutrition programme is to educate players, coaches and parents alike on the importance and practical implications of eating a well-balanced diet to improve health, body composition and sporting performance. The programme will include both theoretical and practical sessions to ensure every individual is catered for.



**George Homewood (Manchester)**

**Mentor: Jeanette Crosland (Freelance Dietician)**

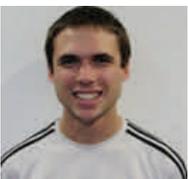
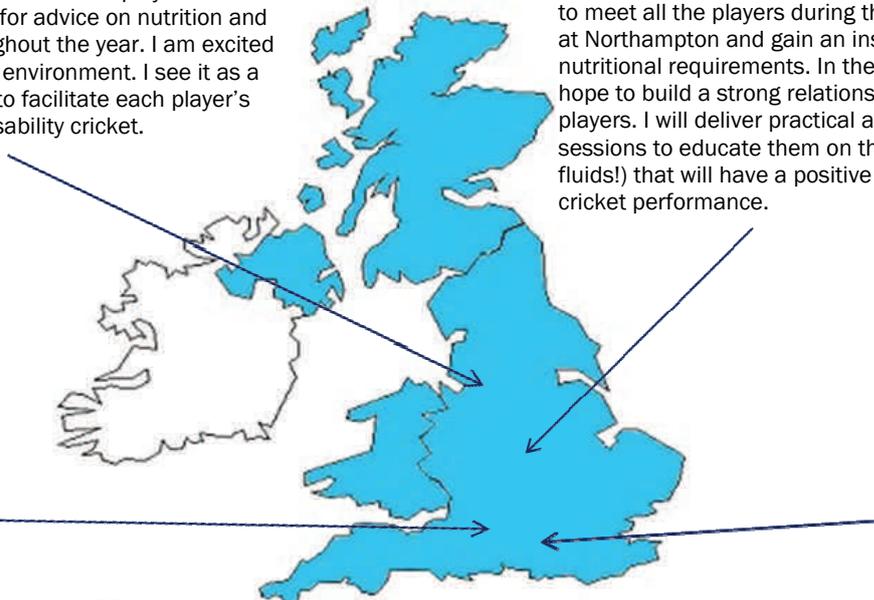
I am an MSc Sport and Exercise Nutrition student and I am working with Disability Cricket athletes at Lancashire County Cricket Club in Manchester. I am excited about the year ahead and look forward to the challenges it brings. Working with such a diverse group of athletes presents an excellent opportunity to develop my knowledge and skills in applied sports nutrition. Every athlete is unique and I am hoping to be able to tailor nutritional support to help each individual reach their full potential and adopt healthy practices. I hope to build a rapport with the players and become somebody they turn to for advice on nutrition and other problems they face throughout the year. I am excited to work in an elite, professional environment. I see it as a fantastic opportunity and I aim to facilitate each player's development and success in disability cricket.



**Andrew Shear (Northampton)**

**Mentor: Clare Pheasey (Manchester Metropolitan University)**

As a current Exercise Physiology (MSc) student at Loughborough University, with a strong passion for all things sport and nutrition, I am extremely delighted to be able to contribute to the current project. Having worked in the sports and fitness industry in the UK and Middle East I have experience of working with a wide range of individuals and believe that this project will enhance my skills in applied nutrition. It was great to meet all the players during the launch weekend at Northampton and gain an insight into their nutritional requirements. In the coming months I hope to build a strong relationship with all of the players. I will deliver practical and interactive sessions to educate them on the foods (and fluids!) that will have a positive influence on their cricket performance.



**Michael Hutchinson (Reading)**

**Mentor: Dr. Louise Croft (Loughborough College)**

I am currently studying towards an MSc Exercise Physiology having done my BSc Sport and Exercise Science at the University of Bath. I have previously worked with Paralympic athletes in the area of physiology so I am really looking forward to working with the Disability Cricketers and focusing on the role that nutrition plays for them in their sport. I look forward to providing the players and coaches alike with useful information that they can use in their everyday and athletic lives. I will be based in the Reading area so that I can work with athletes from the South West and an overspill of athletes from the popular South East site.



**James Smallcombe (South Croydon)**

**Mentor: Terri Graham (PHC)**

Having completed my degree in Sport and Exercise Science (BSc) at Loughborough University I decided to extend my stay for a further year to complete an MSc in Exercise Physiology. I am very much looking forward to working closely with the athletes and coaches at the ECB South East Talent Centre based at Whitgift School. The chance to work with enthusiastic and ambitious young athletes represents a fantastic opportunity and I hope to positively contribute to their development and progression in Disability Cricket.



**I graduated from the University of Bath with a BSc in Sport and Exercise Science and started an MSc in Exercise Physiology at Loughborough this October. My undergraduate studies included a placement year assisting with physiology and sport science support for Paralympics GB in conjunction with Team Bath.**

It was during this year that I met Prof. Vicky Tolfrey and have since been invited to Loughborough a number of times to observe the team at the PHC and assist with a few testing sessions. This included fitness testing with the GB Goalball squads in the run up to the Paralympic Games. The placement concluded working at the Paralympics GB holding camp in Bath under the guidance of Vicky and then as part of the Performance Analysis team at the London 2012 Paralympics alongside Dr. Barry Mason.

The European Wheelchair Rugby Championships were held in Antwerp in August this year. I was given the opportunity to travel with Barry and James Rhodes to assist with their data collection during the tournament. This involved using a novel indoor tracking system to monitor the movement of players on court. We were joined by Dr. Laurie Malone, who had made the slightly more substantial journey from the Lakeshore Foundation in Alabama!

This would be the first time I was going to use the system and was excited to see it in action. Barry and James had obviously been planning the trip for a long time, and clearly to good effect, as a single day of set up was all that was needed to have everything working and ready to go for the start of the tournament. I'm sure the boys would agree with me in saying maybe the only circumstance that was not quite planned for was the excitement (or fear?!) of scaling a mobile scaffolding rig to attach the sensors to the ceiling!

The aim of the trip was to collect tracking data in matches from a range of nations, and from players across all classifications. We were fortunate to have 7 nations agree to participate in the study during the tournament. This not only kept us very busy (I am now quite a dab hand at attaching 'tags' to players between matches) but more importantly allowed us to collect a large sample of high quality data. The co-operation and support for the project from the players and coaches was fantastic throughout the whole tournament.

From my perspective the trip was an undoubted success and gave me a perfect opportunity to develop my field based skills, gain exposure to a new sport and experience the challenges associated with data collection at a major championships.

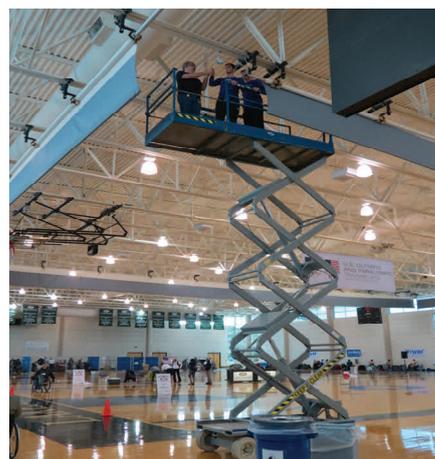
## Americas Wheelchair Rugby Championships by James Rhodes

Part 2 of data collection was conducted at the Americas Wheelchair Rugby Championships, held at the Lakeshore Foundation (Birmingham, Alabama). Dr. Barry Mason, Dr. Laurie Malone and myself were joined by Prof. Vicky Tolfrey to help with data collection.

Day 1 saw Barry and I thrown right into the action, providing one of the most challenging aspects of the trip. We were required to set up the tracking system in the ceiling of the venue, located above the court of play. Given that the ceiling was over 8 metres high, it provided an interesting (or horrifying?!) experience. Through the use of a motorised lift and under the guidance of a member of the maintenance team (who just happened to suffer from vertigo!!), we were able to get up to the ceiling. After the initial 5 minutes of fright (maybe 10), Barry and I were able to take our hands off the sides and actually get stuck in to attaching the sensors. After a full day of set up we were happy that the system was up and running, and were excited for the tournament to commence.

During the tournament, we were lucky enough to have 4 out of the 5 nations agree to participate in the study. The tournament provided some great wheelchair rugby and finished with USA cementing their position as the world's best team. This enabled us to add to our already excellent data set from Antwerp, with more high quality wheelchair rugby data. After the excitement of the tournament had come to a close, the realisation hit home that the system had to come down!! Back up into the lift we go...thankfully it was a lot easier to take down than put up.

Overall, both competitions have allowed us to gain a substantial dataset, from the best players and teams in the world. Similarly to the previous data collection in Antwerp, the co-operation and enthusiasm of all the players and coaches made this a fantastic experience. So I would like to extend a massive thank you to not only all the participating teams but also to the IWRF president John Bishop, and the competition organisers for making this research possible. We look forward to reporting the subsequent results, and hopefully furthering the knowledge of wheelchair rugby. We would also like to thank the financial support of UK Sport and the technical assistance from Nottingham University (Dr. Martin Smith and Bertrand Perrat) which has made this research possible.



**Dr. Christof Leicht, Research Associate at the PHC, returned to Japan in June following a visit earlier in the year to work on a project with Prof. Fumihiro Tajima at Wakayama Medical University. Here, he talks about his Japanese experience.**

This year brought one of my most exciting work experiences as a researcher. I joined a Japanese research group for two months for a project that marks the start of an on-going collaboration between Wakayama Medical University and the PHC. I was warmly welcomed and looked after by the team around Prof. Fumihiro Tajima, who has been leading this group since 2003. Fumihiro Tajima has an impressive research track record in disability sport and rehabilitation and has managed to gather a fantastic team, mainly consisting of medical doctors, physiotherapists and occupational therapists. He was the driving force to establish a research hub at the hospital. For the last couple of years, Fumihiro has encouraged collaboration by inviting international researchers to join his team, but also by sending members of his team abroad. Whilst I was gathering data Prof. Vicky Tolfrey joined us and met the team, which involved many social functions as well as Vicky delivering a couple of lectures.

From a research perspective, one of the greatest things in Japan was the 'can do' attitude. We worked on a big project involving a number of researchers who had a variety of interests – but in the lead-up to the project we were able to tailor the protocol to suit everybody's needs. Being based at a hospital, the work differed slightly to the way we do research at the PHC. For example, the studied population consisted of patients with a tetraplegia, having different needs compared with the wheelchair athletes we usually work with at the PHC. Working together with medical doctors also allowed me to learn how they conduct research.

Exercise can boost immune function, and some of this boost can be explained by the increases in body temperature during exercise. Knowing these benefits from exercise and trying to apply them in patient populations, our project in Japan investigated the impact of body temperature elevations on immune function in isolation, by immersing participants in hot water. This procedure suits this region of Japan, as hot water springs are very popular and have a long tradition. Preliminary results show that parts of the immune system do get a boost by this procedure. This is great news for people who due to their disability may not be able to perform the adequate amount of exercise required for improvements in immune function.

From a cultural perspective, living in a country totally different to Europe was a unique experience. I enjoyed the hospitality and friendliness of my Japanese hosts, being surrounded by a different language with its complex letters, and I loved the seafood and the climate. The people looking after me made me feel at home. I am looking forward to future projects, to continue work with this research group, and also to see my new Japanese friends again.



## ***International collaboration by Riemer Vegter***



The on-going collaboration between the Center for Human Movement Sciences at the University of Groningen (Prof. Lucas van der Woude) and the PHC (Prof. Vicky Tolfrey), gave me a chance to visit Loughborough University and help with the standardized testing of wheelchair rugby athletes. The goal was to validate a new type of ergometer, come up with a test-protocol and consequently test a group of wheelchair rugby athletes on their sprint capabilities and possible asymmetries between the left and right side.

I really enjoyed the company and professionalism of the PHC members Dr's John Lenton and Barry Mason in testing the athletes coming into the laboratory and their extensive knowledge on all things related to wheelchair-sports. My normal modus operandi is more on the crunching of all values related to wheelchair propulsion using Matlab computer programming. Yet, this is mostly based on low intensity steady-state wheelchair propulsion with able-bodied participants, performed in our own lab. The chance to see elite athletes perform to the maximum of their capabilities has been really inspiring and a great learning experience for me.

The measurement protocols we developed, together with new methods of data analysis will in my opinion be very useful for direct feedback to the athletes and further our insights into wheelchair propulsion technique. Besides these professional aspects I also really enjoyed all the people that I've met and shared a good time with. I want to thank Vicky and her team for making me feel very welcome and learn some of their great English culture, like Jam roly-polys with custard!!!!



Following the completion of his PhD, Tom began his new role as Applied Sports Scientist for Great Britain Wheelchair Rugby (GBWR) in September. Tom will deliver sports science support/physical conditioning and innovation directly to the squad in preparation for Rio 2016. He will also contribute significantly to the research programmes of the PHC in physiology and exercise/training prescription.

The last 12 months has been an exciting time for GBWR, with a number of young players progressing from the development to the elite training squad and some new additions to the performance staff. I started my role as Applied Sports Scientist for the GBWR Elite squad following the team's Bronze medal at the European Championships in August and there's been no time to look back since! In my new role I am responsible for monitoring the players' health and fitness levels throughout the year, as well as providing individualised recommendations for training and physical preparation strategies under the mentorship of Prof. Vicky Tolfrey.

With the 2016 Rio Paralympics less than 3 years away and the World Championships in Denmark next August, plans are being put in place to ensure the players arrive at every major championship healthy and ready to perform to the best of their ability. Optimal physical preparation of the players requires a cohesive working relationship between myself as the Applied Sports Scientist and our Lead Strength and Conditioning coach (Ed Baker, EIS) and Physiotherapist (David Merlin). However, as wheelchair rugby is a sport with a very diverse range of impairments, preparation advice is likely to vary from player to player and it is my job to understand how key elements of performance like nutrition, hydration and recovery need to be tailored for every individual.

Therefore, this new role requires me to draw on the experience of my academic studies during my PhD and apply the theories into practice. I also have the benefit on drawing from the vast knowledge and experience of the PHC team members in supporting elite sports. Recently, I have contributed to the talent identification weekends for the next GBWR development squad, a process which has involved the 'benchmarking' of key performance indicators specific to wheelchair rugby and identifying new players with the potential to one day advance to the elite squad. The squad has a heavy international schedule in 2014, starting with a joint training camp with Canada in Ontario in January and culminating in the World Championships in August. It is set to be a busy but hopefully a successful 2014!



Congratulations to Tom who successfully defended his thesis in October and graduated in December.



**Rebecca Joyce**

Research and Innovation Team  
Athlete Equipment and Human factors



## Biography

**Chartered Physiotherapist since 2001.**

**Worked in elite sport since 2007 with the SportScotland Institute of sport.**

**Diploma in Photography and Design 2013**

**Previously, Lead Physiotherapist for GB Snowsports, accredited member of Team GB in Vancouver 2010 Winter Olympics.**

**Lead Physiotherapist for National Rugby 15s / 7s and Weightlifting.**

The landscape of elite sport has changed and the margins for winning are becoming ever increasingly smaller. We are aware of the threat that injury and illness presents to the elite athlete and our mission is to minimize this as much as possible. The Athlete Health Team, work towards optimizing athlete availability, maximizing effort and optimizing recovery during training and competition periods. My role within Athlete Equipment and Human Factors will take into account the role that equipment has to play within these scenarios.

Human factors, in its definition, is the scientific discipline concerned with the understanding of interactions between humans and other elements of a system (Institute of Ergonomics and Human Factors, 2013). In elite sport we are looking at the athlete and equipment relationship, with an overall agenda that is performance. Equipment covers a very broad range of things and understanding these relationships, in order to perform optimally, is paramount. In the Paralympic world this takes a whole new dimension. It presents a diverse and challenging set of circumstances, which, with greater understanding, may prove to be another area where marginal gains can be made.

Having a Physiotherapist background and working in elite sport for the last 5 years, with the SportScotland Institute of Sport, has proved invaluable for this new role. The essence of human factors comes to play in everything we do from injury prevention strategies to rehabilitation projects.

Emphasis within ergonomics is to ensure that designs complement the strengths and abilities of people and minimize the effects of their limitations, rather than forcing them to adapt. We will always look to answer a specific performance question. It is in the deciphering and true understanding of this that we may begin to explore new innovative solutions.

## ***Athlete with Spinal Cord Injury Day by Paul Martin (EIS)***

On 31<sup>st</sup> October, the English Institute of Sport (EIS) hosted a study day focusing on the Athlete with Spinal Cord Injury at Loughborough University. The day formed part of a series of bi-annual CPD opportunities for practitioners (both within EIS and externally) with a special interest in Paralympic Sport. The PHC was very well represented with the opening lecture by Prof. Vicky Tolfrey, Dr. Christof Leicht and Dr. Tom Paulson on the subject of The Spinal Cord Injured Athlete – Physiological Considerations For Health and Performance. The presentation set the tone for the rest of the day and was very well received by the delegates. Following Vicky, Christof and Tom's presentations was Jo Hipkiss (Disability Shooting) who presented her MSc research work on neck proprioception in the Paralympic Shooter and then Jill Crompton (Disability Table Tennis) with her MSc research into shoulder pain in the wheelchair athlete. The afternoon session comprised Stephanie Shreeve (ParaSwimming) discussing the nutritional requirements of the athlete with spinal cord injury, Prof. Thomas Janssen from Amsterdam Rehabilitation Research Centre discussing the role of Functional Electrical Stimulation in tissue health of the spinal cord injured athlete and the day was rounded off by myself and Nick Cooper (both EIS) discussing our work with David Weir through his career from 2007 to the present day. The feedback from the delegates was very positive which included doctors, physiotherapists, strength and conditioning coaches and athlete coaches working in elite Paralympic sport.

## **Stop Press**

### Participants needed

- If you are a novice wheelchair user or non-wheelchair tennis player and would like to learn more about wheelchair fitness drills and take part in a wheelchair tennis study, please contact Paul Sindall ([P.A.Sindall@salford.ac.uk](mailto:P.A.Sindall@salford.ac.uk))
- If you are an individual with tetraplegia currently playing (at least) recreational sport and would like to take part in a study investigating body temperature responses and cooling techniques/strategies, please contact Katy Griggs ([k.griggs@lboro.ac.uk](mailto:k.griggs@lboro.ac.uk))

## The Fit for Life & Sport resources have finally arrived!!!

All 5 disability specific guides are now complete, printed and are available on our website. Please visit [www.lboro.ac.uk/phc-toolkit](http://www.lboro.ac.uk/phc-toolkit) to view and download your own guide and browse some factsheets.

These resources can help individuals with a disability get **Fit for Life**. They start with the basics and teach people how to lead a healthy, well-balanced and active lifestyle and importantly they allow people to progress at their own pace. If an individual chooses to take up a sport, the **Fit for Sport** section will help them understand how to adjust their training and nutrition, and how to use some psychological skills to improve their sports performance. No matter what level they are currently at, or even if they are just getting started, this guide can help them to achieve their own personal goals. These guides will hopefully give people the confidence and understanding about how to lead a healthy, more active lifestyle and maybe try something new.

## Which Section is for me?

### Fit for Life

- ⇒ Do you want to get fitter and healthier?
- ⇒ Do you currently do little physical activity and exercise?
- ⇒ Do you have limited nutrition knowledge?
- ⇒ Do you want to learn and/or recap the basics?

### Fit for Sport

- ⇒ Do you already regularly (at least three to four times per week) take part in exercise and/or sport?
- ⇒ Do you want to improve your performance?
- ⇒ Do you want to tailor your nutrition to your sport?
- ⇒ Do you want to understand how to use some psychological skills to improve?

## Guides

### Amputee Ambassador: Richard Whitehead



*“Not everybody wants to be an athlete and everyone has different goals: yours may be to join a sports club, learn how to run using your new prosthesis, or simply to get fit and healthy but whatever they are, don't let anything get in your way. I am a strong believer in living life without limits.”*

### Cerebral Palsy Ambassador: Sascha Kindred

*“When my passion for Swimming began as a child, I would never have dreamt that I would have the honour of representing my country in 5 Paralympic Games. Competing at an elite level is not everybody's aim but finding a form of physical activity and exercise that you enjoy is an important part of leading a healthy lifestyle. Whatever your goal, this guide will hopefully help you to achieve it.”*



## Spinal Cord Injury Ambassador: Andy Barrow



*“Having played Wheelchair Rugby for many years I understand the importance of training, nutrition and psychology for the elite athlete. However, overcoming barriers to physical activity and exercise and eating well have become even more important now that I have retired. I may not be an elite athlete anymore but I still want to maintain my health and fitness.”*

## Visually Impaired Ambassador: Georgie Bullen

*“Having an impairment can often limit peoples’ outlook, but through sport I’ve led a happier and healthier life and achieved more than I ever thought I could. Whatever your limitations, sport can help you to break down the social and physical barriers that can often come with the isolation of impairment, helping you to meet new people and feel more confident. Being fit and healthy has more benefits than simply physical, as it gives you a drive and a sense of fulfilment that is hard to beat.”*



## Les Autres Ambassador: Zoe Newson



*“Having played sports such as Football and Athletics as a child I started Powerlifting at the age of 14 and have never looked back. My advice is to try lots of different sports and activities so that you can find some that you really enjoy. This will help improve your health and fitness, and help you to stay active in the long-term.”*

## What’s Next?

We would like to distribute the guides to as many people and organisations as possible and also facilitate access to the online versions. If you are running any events which might be useful for us to attend, if you would like some printed copies or if you would be able to house a link to the resources on your website please get in touch with [T.S.Graham@lboro.ac.uk](mailto:T.S.Graham@lboro.ac.uk)

We would also like to evaluate if and how the resources are being used by individuals who have accessed them. Initially we will ask people to volunteer to do this when they download the resources from our website.

The project team also look forward to inviting the Advisory Board back for the final project meeting in January 2014.

## Physiological markers of physical activity

The aim of this strand was to determine the effect of physical activity on markers of long-term inflammation in wheelchair users and whether the physiological basis for the apparent 'anti-inflammatory' effects of exercise would be limited by the small muscle mass used in upper body exercise. During the project Dr. Tom Paulson (supervised by Dr. Lettie Bishop and Prof. Vicky Tolfrey) found that one of the key physiological events thought to contribute to the anti-inflammatory effects of exercise, muscle release of IL-6 during exercise, was impaired in those with spinal injuries above T6 and that FES/hand cycling hybrid exercise was able to enhance the anti-inflammatory potential of exercise in individuals with paraplegia. These findings demonstrate the need to develop lesion specific exercise guidelines to enhance these and other protective effects of exercise on immune and inflammatory responses. This work continues with Dr. Christof Leicht joining the project and we are now looking at ways in which the positive effects of exercise on immune and inflammatory responses can be maximised in those with spinal injuries through different exercise protocols and modalities.

## Project INSPIRED



Project INSPIRED is a research initiative that looks to harness the power of real life stories to motivate spinal cord injured people to be physically active. More than 30 spinal cord injured individuals, male and female of all ages, were asked to share their stories of being physically active. Some told stories of regular exercise, others told of the struggle to stay motivated in the face of numerous obstacles. All participants delivered emotional, heartfelt accounts of their experiences. Based on these stories, Dr's Anthony Papathomas and Brett Smith have created two fictional stories that tell the tale of a character with a spinal cord injury who becomes more physically active. From January 2014, Anthony and Brett will be testing whether these fictional stories are effective at inspiring spinal cord injured people to be more active and informing them of the benefits of exercise.

## ParalympicsGB Sports Fest

The team used the latest ParalympicsGB Sport Fest at the University of Worcester Arena as the first event to launch the Fit for Life & Sport guides to budding disabled athletes. The guides were well-received by those attending the event and many were pleased to have the disability-specific information 'all in one place'. People attending the event were able to try any of the 19 Paralympic sports on offer and also meet some of the athletes, some of whom feature in the guides themselves (Mel Clarke, Josie Pearson, Dan Greaves and Steven Judge). The guides were also introduced to all of the winter and summer Paralympic sports in attendance in the hope that they can be used by their grassroots clubs and their development athletes.



**Remember: all 5 disability specific Fit for Life & Sport guides are now complete, printed and are available on our website.**

**Please visit [www.lboro.ac.uk/phc-toolkit](http://www.lboro.ac.uk/phc-toolkit) to view and download your own guide and browse some factsheets.**

## Stop Press

- Edited by Dr. Brett Smith, a new book that showcases research on 'Paralympics and Disability Sport' has recently been published by Taylor and Francis; Routledge.
- Dr. Barry Mason with Prof. Vicky Tolfrey have been awarded a consumables grant from RGK wheelchairs to help gather evidence-based research about design modifications to the basketball wheelchair. This project welcomes Marrit Lemstra from the University of Groningen, who will be working at the PHC for 6 months as part of her MSc project, starting in January.
- Prof. Vicky Tolfrey and Dr. Barry Mason have been invited to act as consultants on the "Perfect Basketball Wheelchair." This project is conducted by Annemarie de Witte and Rienk van der Slikke and directed by Monique Berger, Lucas van der Woude and Drik Jan Veeger from the Netherlands.
- Annika Willems from the VU University will be joining the PHC for 6 months in January and Dr. Tamae Yoda from Dokkyo University, Japan will be at the centre for a year in April. Read more about their projects in the Summer 2014 newsletter.



**Kathleen Martin Ginis joined the PHC as a Visiting Professor in 2013. Her expertise is in exercise psychology; she has a particular interest in understanding and enhancing physical activity participation among people living with a spinal cord injury. She is a Professor in the Department of Kinesiology at McMaster University in Ontario, Canada, the Director of McMaster University's Physical Activity Centre of Excellence ([www.science.mcmaster.ca/pace/](http://www.science.mcmaster.ca/pace/)) and the founder and Director of SCI Action Canada ([www.sciactioncanada.ca](http://www.sciactioncanada.ca))**

## **How did you first become involved in physical activity participation among people living with spinal cord injury (SCI)?**

A colleague invited me to work on a research project where we studied the effects of a 9-month exercise training program on people with SCI. She was interested in measuring the fitness benefits and I was interested in measuring the effects on psychological well-being and quality of life. The exercise program took place right outside my office door. Over the course of that study I became utterly fascinated by the study of physical activity and SCI. I also got to know our participants and to learn about their experiences and challenges in trying to be physically active. That experience ignited a passion for working towards understanding and improving physical activity participation in the SCI community.

## **What is your involvement with the Peter Harrison Centre for Disability Sport?**

I am on the advisory board for the Coca-Cola Active Healthy Living Grant and I have ongoing research collaborations with Dr. Brett Smith.

## **What is the biggest challenge you have faced within your research?**

I think this is a common problem among SCI researchers—recruiting sufficiently large numbers of people with SCI to carry out our studies.

## **How can we ensure that research is translated into useable information for people living with a spinal cord injury to utilise?**

I strongly believe that we need to engage people living with a SCI and the people and organizations that support them, early on in the research process. I've experienced first-hand, that if we engage key organizations, for instance, when we're writing the grants and designing our studies, and obtain their input and feedback during this process, then we ensure that we are designing research that will ultimately yield usable outcomes for the SCI community. Likewise, when it comes time to translate that research evidence into usable products, tools and services, the input of the end-user is absolutely vital. When we have that input, we are more likely to put the evidence in formats that people can actually use. Community partners are also more likely, I think, to help disseminate the information to the community because they know it addresses a need identified way back when the research was initiated.

## **Do you have any advice to academics working in adapted sports?**

Take the time to cultivate relationships with community partners. Partnered research is incredibly rewarding because of the insights, opportunities and lessons that can only come from being fully engaged with the community.





**Lucas van der Woude joined the PHC as a Visiting Professor in 2013. Since 2009, Lucas has been a Professor in 'Human Movement, Rehabilitation and Functional Recovery' at the Center for Human Movement Sciences, University Medical Center (UMCG) at the University of Groningen (RUG). Before this, Lucas worked for over 25 years at the Faculty of Human Movement Sciences at the VU University in the area of rehabilitation, ergonomics and assistive technology.**

### **How did you first become involved in the area of rehabilitation, ergonomics and assistive technology?**

During my masters research work in human movement sciences my professors, Peter Huijning and Rients Rozendal, offered me a temporary part time job to develop a new research program that would combine potential interests and ambitions of my department around rehabilitation and ergonomics. During my studies I had been involved in different research activities in both the rehabilitation context as well as in ergonomics. The theoretical framework of this work was essentially based on the power balance model for cyclic exercise, which was developed by my former colleague Prof Gerrit-Jan van Ingen Schenau, who was a great scholar, but unfortunately died far too early. The power balance for cyclic movements which entails a combination of biomechanical and exercise physiology principals and theory has been applied to all sorts of cyclic movements in sports practice and rehabilitation.

### **What is your involvement with the Peter Harrison Centre for Disability Sport?**

I was invited, by Ian Campbell, as an external examiner to the PhD defence of Prof. Vicky Tolfrey at Manchester Metropolitan University. This led to a regular collaboration with Neil Fowler and Vicky which formally started with the PhD work of Dr. John Lenton (PHC, University of Groningen) and Dr. Barry Mason (PHC, Loughborough University). They successfully completed their PhDs and are part of a broader network of collaboration including Sonja de Groot and Riemer Vegter at the Center for Human Movement Sciences in Groningen. This year; Riemer Vegter was over for a three week project period (see pg 9), I was over for the thesis defence of PHC member, Tom Paulson and in January, Marrit Lemstra will visit the PHC for her masters research project. Through collaboration with the PHC I have been able to fulfil my interests, wishes and intentions in adapted sports research, whilst I bring expertise on spinal cord injury rehabilitation research of the Dutch collaborative clinical research network ([www.scionn.nl](http://www.scionn.nl)). From these activities and mutual interests another network has developed, Prof. Thomas Janssen's initiative on ERGIDS, a European research network on adaptive sports, which the PHC is a part of.

### **What is the biggest challenge you have faced within your research?**

To be a researcher with an applied interest, you need to keep believing in your own ideas and be strong minded. In an academic world it is much more directed on fundamental questions. To keep believing in a model of harmony and not going for the competition model is another point. And finally, there is only so much we can do, we basically do so little. So, believe in what you stand for and select your next path, despite head wind or at times perturbations. I see myself in some ways as an 'elephant', plodding his way through life at a steady but enduring pace, following his own beliefs and opinions with successful research.

### **How key is academic collaboration in your research?**

I see myself at times as the living example of academics 'working together.' Large research networks in disability and sports or in spinal cord injury rehabilitation both at a national scale, were and still are – in hindsight – extremely productive. The congress series that I organize is in its 5<sup>th</sup> edition in April next year, and is a good example of collaboration ([www.rehabmove2014.com](http://www.rehabmove2014.com), see opposite page ). It all started in 1989 following my PhD in Amsterdam and working at that stage in an European network for wheelchair research (headed by Prof. Antonio Pedotti, Milan). He provided us with a stipend to organize the 1<sup>st</sup> Amsterdam congress. After that we kept on finding ways to bring an international group of researchers and practitioners together in Amsterdam, roughly every 5 years. These events brought many different people together, but also provided many opportunities for collaboration, mobility and exchange, for staff and students alike (the students are pivotal in this type of organisation, yet provide a unique stepping stone into international academia at the same time). Multidisciplinary collaboration in modern academia is indeed key for success, and not only in my career.

### **Do you have any advice to academics working in adapted sports?**

Firstly, collaboration, secondly, believing in your own ideas. Especially in adapted sports and rehabilitation, problems are often extremely multifactorial. This means large groups of subjects or participants are required, while at the same time only few are available. Collaboration, especially internationally, is needed to compile sufficiently large experiments to control for the multitude of determinants. On another note, the complexity of these problems is equally large, so many different professionals and research disciplines are required to help solve the issues. In those networks, be open and transparent as well as respectful.



REHABILITATION:



Rehabilitation: 'Mobility, Exercise & Sports' is the 5<sup>th</sup> edition of our International State-of-the-Art Congress. It builds on the strong and natural link between rehabilitation and human movement sciences. High standard thematic keynotes and free presentations are combined with posters and exhibition in a concise area and sociable atmosphere in the City of Talent!

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December 16<sup>th</sup>, 2013

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- Wheeled Mobility
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- Walking & Running
- Sports Injuries
- Ethical Considerations
- Healthy Ageing
- Robotics & Virtual Reality

PRINCIPLES OF LEARNING AND MOTOR (RE-)LEARNING IN REHABILITATION

Prof. **Karl Newell** PhD (USA)

BALANCE AND ENERGETICS DURING WALKING AND RUNNING IN IMPAIRED ADAPTED SPORTS

Prof. **Bert Otten** PhD (Netherlands)

FUTURE REHABILITATION DIAGNOSTIC TECHNOLOGY: MATCHING THERAPIES TO PATIENTS

Prof. ir. **Jaap Harlaar** PhD (Netherlands)

PHYSICAL ACTIVITY GUIDELINES FOR PEOPLE WITH A DISABILITY

Prof. **Carol Ewing Garber** PhD, FACSM, FAHA (USA)

THE COST OF IMPAIRED WALKING

Prof. **Joseph Czerniecki** MD, PhD (USA)

ETHICAL CONSIDERATIONS IN (ELITE) ADAPTED SPORTS

Prof. **Mike McNamee** BA, MA, PhD (UK)

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**Claudio Perret** PhD (Switzerland)

SPORTS INJURIES

**Nick Webborn** PhD, MSc (UK)

AGING, CHRONIC DISEASE, ACTIVE LIFESTYLE & SPORTS

Prof. **James Rimmer** PhD (USA)





Working with the **Wheelchair Tennis Development Fund (WTDF)**, (an intervention initiative which provides sustainable, wheelchair tennis programs in developing countries), I investigated the psychosocial impact of wheelchair tennis on participants in developing countries. Here, I present key findings from this funded study with selected quotation to further illustrate the impact of wheelchair tennis on participants' psychosocial well-being.

## Improved psychological well-being

**Alleviated psychological trauma:** Acquiring a disability causes distress, anxiety and depression. Participants who had acquired their disability stated playing wheelchair tennis helped them adjust to new circumstance and improved psychological health.

**Increased self-confidence:** In developing countries, individuals with disabilities can be shunned by society. Players noted how taking part in wheelchair tennis improved their self-esteem, both in the sport and also in other life domains.

*As my self-confidence improved, so did my performance at school. I was able to interact with people and communicate in new ways and this greatly increased my circle of friends and acquaintances (Turan, former player, now coach).*

**Increased self-belief:** Players reported their self-belief was very low before they played wheelchair tennis and afterwards their belief on court increased. This belief also transferred to other life domains such as family and work life.

## Increased Opportunities

**Education and employment:** Participation in wheelchair tennis allowed some players to attend university through sports scholarships and for others provided employment as coaches. This allowed them to live independently, have pride in their achievements and have a better quality of life.

**Opportunity to travel:** In many developing countries travelling is problematic due to visa issues and warfare. All players interviewed noted how playing wheelchair tennis had given them the opportunity to travel to different countries and experience new cultures.

**Fulfilment of ambitions:** Participation in wheelchair tennis also allowed players and coaches to fulfil ambitions which may not otherwise have been possible.

*I watched tennis on television. I wanted to play tennis. It was my dream...and then like a gift from God wheelchair tennis fell into my life...I got a car, I got a job, I was able to get married... My wheelchair tennis is my life. When my wife saw me play tennis and realized that I was a true athlete, she wanted to marry me (Ahman, Iranian player).*

**Opportunity to share knowledge:** Players noted how meeting players from other countries allowed them to share knowledge regarding treatments and prosthetics.

*They told me that I should walk freely. I don't have to be restrained by clutches or prosthetic, or a wheelchair; if I have to use a prosthetic use a prosthetic and if I have to use a wheelchair for longer trips or something I can use the wheelchair very easily (Andrei, Romanian player).*

## Improved Perceptions of Disability

In many developing countries, disability is seen as a punishment due to transgressions from a past life or those of a parent. Participation in wheelchair tennis challenged this belief, at both an individual and social level.

## Perceived Social Support

**Coaches and officials:** All coaches and officials worked on a voluntary basis, some having sacrificed full time, paid employment. A coach's role was not limited to that of a coach; one participant noted how he felt he was their dad, physiotherapist, psychologist, driver and friend.

**WTDF:** All participants noted how the psychosocial benefits they experienced through wheelchair tennis would not have been possible without the tangible and emotional support of the WTDF.

*This is the beauty of it (WTDF). Do you realise how many countries...have benefited from this fund? And I'm not just talking about a little benefit; I'm talking about their juniors, their women, their men making an appearance. There are players in this tournament who are still using only the fund donated, economic chairs. (Liz, Turkish official)*

**Socialisation of players:** The social aspect of wheelchair tennis allowed players to share experiences of disability, improve their social lives and expand their circle of friends.

## Challenges of Wheelchair Tennis

**Lack of funding and resources:** The biggest challenge noted by all participants was a lack of funding and resources.

**Perception of disability:** Coaches and officials noted how tennis centres were reluctant to allow wheelchair tennis to practise on courts for fear of marking the court or not portraying the right 'image' for their club.

**Awareness:** A lack of awareness of the existence of wheelchair tennis was also seen as a key barrier to future development.

Wheelchair tennis has multiple benefits which enhance psychosocial well-being and quality of life. However, there are still challenges to overcome to ensure the benefits of wheelchair tennis are experienced by more people. More research and media exposure is needed to maintain the growth of the WTDF and bring more programmes to a greater number of people.

## The impact of sport and physical activity upon the well-being of combat veterans: A systematic review

This systematic review paper was recently accepted for publication in *Psychology of Sport and Exercise*. The review aimed to explore the impact that various forms of sport and physical activity had upon two types of well-being in both disabled combat veterans and combat veterans diagnosed with Post-Traumatic Stress Disorder (PTSD). We reviewed 11 studies which provided evidence of sport and/or physical activity impacting either the Subjective Well-Being (SWB; a person's satisfaction with life and the relative balance of positive and negative emotions they feel) or Psychological Well-Being (PWB; experiences of personal growth, 'flourishing' and the fulfilment of human potential) of combat veterans in the aftermath of life-changing physical or psychological trauma.

The main findings of the review were that diverse sports and physical activities including outdoor adventure pursuits, fishing, exercise classes, 'challenge events' such as climbing Mt. Kilimanjaro, and involvement in Paralympic sport can have potential benefits for veterans' well-being. For example, becoming involved in Paralympic sport was considered to help veterans focus on their *abilities* – on what they could still achieve – following traumatic disabilities sustained in war such as limb amputations and spinal cord injuries (Brittain & Green, 2012; Hawkins, Cory & Crowe, 2011). In addition, studies reported that veterans diagnosed with PTSD experienced a sense of accomplishment and renewed self-confidence through participating in activities such as kayaking (Dustin, Bricker, Arave & Wall, 2011) and outdoor adventure pursuits (Hyer et al., 1996). In these ways, the studies reviewed highlighted that sport and physical activity can foster experiences of personal growth and fulfilment in combat veterans (i.e., enhanced PWB).

Furthermore, the review highlights evidence of the impact that sport and physical activity can have upon veterans' subjective well-being. For example, being involved in a four day kayaking trip down Colorado's Green River (Dustin et al., 2011) and participating in a weekly exercise class (Otter & Currie, 2004) both showed that being active can reduce unpleasant symptoms associated with PTSD. Similarly, in injured/disabled veterans climbing Mt. Kilimanjaro was experienced as a form of 'active coping', which entailed being proactive about enhancing their well-being and dealing with the psychological impact of combat-acquired disability. Additionally, participating in elite Paralympic sport illustrated the *restorative* power of sport for newly disabled veterans (Brittain & Green, 2012), because it enabled them to enjoy life *once again* (i.e. post-injury when other outlets for enjoyment may have been lacking). Different varieties of sport and physical activity thus supported veterans' subjective well-being by helping to shift the general balance of emotions they felt in their post-trauma lives in the positive direction.



The review provides the first empirical synthesis of knowledge on the impact of sport and physical activity upon the well-being of combat veterans and acts as a key resource for evidence-based practice and policy/decision making in this area. Further, the review also highlighted the under-researched role of nature-based physical activity in supporting the well-being of combat veterans.

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## In relation to disability, sport and physical activity, members of the PHC have been pioneering the study of narrative. By narrative we mean the stories people tell and hear. Why though is narrative of importance to study?

Neuroscientists, medics, psychologists, sociologists, anthropologists, and so on have all argued that humans are storytelling creatures. The stories humans tell and hear matter enormously because they *do* things. Rather than being passive, stories teach us what to do, what to avoid, and who we are and can be. They shape and inform our behaviour, emotions, attitudes, and identity from birth to our death.



Consider the use of stories in bringing up children. Parents don't teach their child through a set of formulas or abstract principles; they most often teach them through the stories they tell – by telling stories at the sink in the morning about why it's important to brush their teeth, to sharing tales over dinner about playing sport many years ago at school, to reading stories at bedtime about wicked witches or a young princess dressed in a paper bag who fights a dragon and saves the Prince. These stories do many things. They can entertain of course. But crucially, they teach people things such as 'what health behaviours we should do and ignore,' 'right and wrong', and 'how a young woman should or might behave in society'. Society also places a huge value on

stories. For instance, when Brett registered the birth of son he was given a bag of free books. On the bag it said 'Love stories: they matter in your child's development'. They matter because, like a musical conductor directs an orchestra, stories direct us – directing us to act in certain ways, take up specific things, avoid particular activities, and choose one thing over another.

For many years, members of the PHC have been harnessing the power of stories to study disability, sport and physical activity, and communicate research. This work is innovative because much research in sport and health takes what is called a cognitivist approach. That is to say, scientists trace our behaviours to the individual mind and treat humans like a computer or informational processing system. This work has produced important results. However, no research or theory is ever perfect. Brushing aside the many recent criticisms of cognitive approaches, research that simply uses a cognitive approach will always be limited because it fails to consider the importance of stories in our lives. For example, cognitive approaches package research findings into leaflets, books, talks to policy makers and so on as if we are rationale beings who will, with the right information, follow what we are told to do. But we rarely do! The vast research on obesity, for example, assumes that people will follow guidelines that tell (key word!) them to do exercise and eat healthily. Most of us KNOW we should exercise, but we don't. We still have a so-called obesity epidemic; people in narrative terms don't find the information attractive, connect to it emotionally, or identify with what is said – they KNOW it, but pass over it in the river of not-for-me!



We are interested in stories because, as noted above, stories can do vital things on, for, and in people. We think that stories might complement cognitive approaches by offering something important that is missing when we treat people as simply an informational system. People are attracted to stories; we connect to them emotionally; we can put ourselves in the place of characters in the story, identifying with them and their plights, pleasure, and pain; and we stay with certain stories for a long time, revisiting them and letting them guide us (think of your favourite books, films, or stories friends have shared). Our modest aspirations therefore have been to collect stories from disabled people themselves and analyse these. We ask ourselves what types of stories do people tell, why, and with what effects on their behaviour, emotions, attitudes and so on. In addition, we are testing which stories over others can teach, shape, and motivate disabled people to do certain things, like be more physically active. Preliminary evidence suggests that stories are important for all this. We have also found that they are an excellent means for communicating research findings to wide audiences. The danger of course is that some stories can put people off doing certain things. This is why research is needed; we can find out what is 'good' and 'bad' about certain stories, and then be in a much better place to inform policy, craft evidence based case study stories on disability websites, and provide health professionals, coaches, and so on with stories we know work.

## Stop Press

- Dr. Brett Smith was recently invited by founders of the Participation and Quality of Life project in Canada to be the first 'Ask the Expert'. Brett's answers to a set of submitted questions from professionals working with spinal cord injured people in rehabilitation, sporting contexts, medical settings, and the community can be found at <http://www.parqol.com/askanexpert.cfm>. The project website is accessed by 5,000 people a month across the world. <http://www.parqol.com/index.cfm>

## The effect of surfing and the natural environment upon the well-being of combat veterans

Whilst research supports the potential benefits of physical activity on mental health, there is very little evidence surrounding the effects of nature-based physical activity on mental health and well-being. This study investigated the effect of one form of nature-based physical activity – surfing – upon the well-being of combat veterans diagnosed with Post-Traumatic Stress Disorder (PTSD). To investigate these potential effects, we conducted interviews and participant observations with 16 veterans who regularly attend meetings of the veterans' charity Surf Action (see [www.surfaction.co.uk](http://www.surfaction.co.uk)). The data collected were subjected to a narrative analysis which examined the stories the veterans told of their surfing experiences. The main findings of the study are summarised as follows.

The dominant story told by the veterans was about surfing as 'respite' from PTSD. The following is a typical example of this story:

**“It frees you up. It's freedom for those two or three hours. Kind of like a bit of respite. It takes your mind off it. Just leave all that away somewhere on the beach and then...we'll deal with that later. But for now, when we're surfing, we're gonna have a laugh. And there's not a lot you can do to not have a laugh. It's kind of the antidote to PTSD in a way - you know, get your wetsuit on, go for a paddle, ride a wave and it's like PTSD doesn't exist for that short time – which is all good in my book.” (Matthew)**

The story told by Matthew (pseudonym) – a Northern Ireland veteran – illustrates the effect of surfing in terms of the feeling of 'freedom' or 'release' it provided from the everyday nightmare of PTSD. The basic outline of this story, which organised the veterans' experiences temporally around regular experiences of respite, was 'I suffer from PTSD. But when surfing, for these few hours, PTSD is placed in the background and laughter/enjoyment is possible. Surfing provides a break from suffering.'

The research found that surfing experienced as 'respite' influenced veterans' well-being in two key ways. Firstly, by pushing PTSD into the background of their lives, surfing protected the veterans' well-being against some of the more 'serious problems' (e.g. suicide) that can be associated with PTSD. The veterans felt that having this period of respite to look forward to each week prevented them from entering a downward spiral in which they felt overwhelmed by their suffering. Secondly, surfing provided a positive boost to the veterans' subjective well-being (i.e. their satisfaction with life and the balance of positive and negative emotions they feel over time). Going surfing allowed veterans to experience pleasure through engaging with the natural environment and also by facilitating positive social interactions between veterans (thereby also helping them to overcome a sense of social isolation).

The research highlights the potential benefits of surfing for the well-being of combat veterans, and calls for surfing to be used alongside previously established methods of treatment for PTSD such as medical or clinical approaches. The study is also the first to suggest that experiences of nature-based physical activity could have a role to play in enhancing in mental health and well-being.



## Sport Science

### Journal articles

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### Expert Statement

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## Performance Health

### Journal articles

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## Psycho-Social Health and Well-Being

### Journal articles

- Smith, B. (2013). Sporting spinal cord injuries, social relations, and rehabilitation narratives: An ethnographic creative non-fiction of becoming disabled through sport. *Sociology of Sport Journal*, 30(2): 132-152.
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### Book chapters

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- Smith, B. (2013). Artificial persons and the academy: A story. In N. Short. L. Turner and A. Grant (Eds). *Contemporary British Autoethnography* (pp.187-202). Rotterdam: Sense publishers.
- Smith, B., Sparkes, A. and Caddick, N. (2013). Passing judgment on qualitative sports coaching research: Validity and goodness criteria. In. R. Groom, L. Nelson and P. Potrac (Eds). *Doing Research in Sport Coaching*. London: Routledge.

## Sport Science by Prof. Vicky Tolfrey

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The Sport Science team members continue to work hard and over the last 6 months we have seen the PhD completion of Tom Paulson who's work has spanned across both the Sport Science and Performance Health strands. Tom is now working with GB wheelchair rugby and has established a great partnership with the English Institute of Sport (EIS) Strength and Conditioning coaches (pg.10). Katy Griggs has been promoting the PHC through media sites (e.g. website, twitter, newsletter and press releases) whilst assisting with the Sport Science Services. Her part-time PhD work is moving in the right direction with a presentation being made in Barcelona at the ECSS conference this summer and more recently with finalising her next PhD study which is due to start later this month (pg. 11). James Rhodes and Dr. Barry Mason have forged some excellent relationships in the domain of wheelchair rugby (pg. 8). This work has seen James and Barry clocking air miles to the USA twice, Switzerland and a return trip via rail travel to Belgium (thanks to the support of UK Sport). Dr. John Lenton continues to offer technical assistance to student and staff members, runs the Sport Science Services and with the busy schedule of testing ensures the smooth running of the lab. From a research perspective he has been working with Prof. Lucas van der Woude and Riemer Vegter (pg.9) to set-up the new wheelchair ergometer. Terri Graham has been busy with the production of the 'Fit for Life & Sport' resources (pg. 12-13), alongside this work she has worked with two MSc students on a study exploring caffeine and wheelchair performance, finished the World Anti-doping Agency (WADA) nutritional audit and set-up a disability cricket project (pg. 7). Finally, Paul Sindall based at Salford University has spent the last 6 months analysing and writing up his PhD data whilst making preparations for his final study (pg. 11).



We have a few exciting future projects on the horizon working with RGK wheelchairs, Paratriathlon and working in partnership with other leading colleagues within our School and the University (Prof. George Havenith, Dr's Keith Tolfrey, Katherine Brooke-Wavell & Phil Watson). Alongside this work we continue to work with others outside of the University (visitors from Holland and Japan), which we look forward to sharing with you in 2014.

## Performance Health by Dr. Lettie Bishop

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Since the last newsletter Dr. Christof Leicht has enjoyed a very productive research visit to Wakayama University in Japan to work with Prof. Fumihiro Tajima and his team looking at inflammatory cytokine responses to heat exposure in those with different levels of spinal injury. Christof made such a good impression that he returned to Japan in December to finish the study with a view to future collaborations. In other news, in September Tom Paulson travelled to Newcastle, Australia to present some of his work looking at cytokine responses to FES-hybrid exercise at the meeting of the International Society for Exercise Immunology to good acclaim and then returned to Loughborough to successfully defend his PhD Thesis. We continue to collaborate with Prof. Thomas Janssen in the above aforementioned thematic area and last month we welcomed Arjan Bakkum to our laboratories to work alongside Tom.



As we move forward to 2014, I pass the reigns to Prof. Maureen McDonald who is going to work through the Centre's Performance Health strategy with Prof. Vicky Tolfrey and I. I will continue to engage with Vicky and the team on the effects of acute exercise and training on immune function, inflammatory and immunoendocrine responses in elite and recreational athletes with spinal cord injuries.

## Psycho-Social Health and Well-Being by Dr. Brett Smith

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Four years ago the Health and Well-being strand comprised of one person! Today we have a team of nine (and two new sons). We also have numerous collaborations with national/international scholars as well as work with various disability user-groups. Over the last six months the team has disseminated our research to numerous audiences in cities around the globe - from Beijing, to Hawaii, to Birmingham. As always, a number of high quality research papers and book chapters have been produced that advance knowledge and push boundaries regarding how we research disability, sport and physical activity. We are also editing key books and journal special editions. For example, Dr. Anthony Papathomas has recently co-edited (with Trent Petrie) the forthcoming special issue in the journal Psychology of Sport and Exercise on eating disorders in sport. Dr. Brett Smith is editing (with Robert Schinke and Kerry McGannon at Laurentian University, Canada) the International Handbook on Sport Psychology (Routledge). Toni Williams is also the editorial assistant for the journal Qualitative Research in Sport, Exercise and Health. She is also co-leading the 4th International Conference on Qualitative Research in Sport and Exercise. This will be held on the 1-3 Sept 2014 at Loughborough University (pg.24) and have a special theme focusing on 'Disability sport and physical activity'. We look forward to another exciting 6 months.



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# QRSE 2014

## 4<sup>th</sup> International Conference for Qualitative Research in Sport and Exercise

**Save the date: 1-3 Sept 2014**

In September 2014 the 4<sup>th</sup> International Conference on Qualitative Research in Sport and Exercise will take place at Loughborough University. Following on from the success of the last conference at the University of Roehampton in 2009, this conference will be held in conjunction with the international journal, Qualitative Research in Sport, Exercise and Health, and chaired by Dr. Brett Smith.

Qualitative research in sport and exercise is committed to advancing and communicating knowledge on the dynamic and embodied nature of sport and physical activity. Such approaches are central to understanding the complexity of sporting experiences; promoting physical activity for health and well-being; enhancing performance in sport; engaging with social inclusion/exclusion initiatives; encouraging health and well-being of the athlete; building sustainable communities; and developing effective approaches to coaching, leadership and sport development.

This conference is dedicated to disseminating cutting edge empirical inquiry and advancements in qualitative methodologies and methods. We welcome qualitative researchers from all the social scientific areas of sport, exercise and physical activity to share and critically discuss their experiences of conducting qualitative inquiry. The conference is open to all academics, practitioners and students in any related field to offer a truly multi-disciplinary exploration of sport and exercise.



**Please follow [@QRSE 2014](https://twitter.com/QRSE2014) to keep up to date with all the conference news**



*Produced by Katy Griggs 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](mailto:phc@lboro.ac.uk) or contact the PHC Director at [V.L.Tolfrey@lboro.ac.uk](mailto:V.L.Tolfrey@lboro.ac.uk)

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