NEUROLOGICAL REHABILITATION THERAPY AND TECHNOLOGY EXPO

As an all-new division of COPA Practice Growth 2015, Neuro Rehab is the UK’s largest show for health professionals working in the rehabilitation of neurological conditions. Here, International Innovation outlines some of the highlights from this year’s event and talks to leading neurological rehabilitation professionals about innovative performance-enhancing strategies.

THE NEUROLOGICAL REHABILITATION Therapy and Technology Expo returned to ExCel London in June 2015, showcasing the latest technology in the sector and hosting clinical continuing professional development seminars led by Plymouth University. First launched in June 2014, and successfully replicated in New York earlier this year, the two-day event attracted 937 health professionals and over 30 different technologies from across Europe and America.

This year’s Expo was attended by biomechanists, neurologists and physiotherapists working in the field of acquired brain injury, as well as rehabilitation medicine specialists. With a range of exhibitors spanning antigravity treadmills, motion analysis, and functional and neuromuscular electromostimulation, the event provided key business and networking opportunities, along with useful workshops and seminars from leading rehabilitation professionals.

Highlighting the importance of research into neurological conditions, the Expo focused on the application of assistive technologies and what the future holds for the neurological rehabilitation profession. The message throughout the two days was loud and clear: understanding technological advances is crucial for enabling neurological patients to recover and for enhancing their function and mobility. Industry thought-leaders who presented in the keynote seminar theatre gave engaging and inspiring talks, emphasising that limitations to restoring quality of life to individuals with neurological conditions is often more limited by resources, processes and attitudes than by a lack of knowledge or ideas.

“This industry moves so fast – if one day there is not a new player in the virtual rehabilitation world then there is a new robot which can make a real difference in stroke rehabilitation,” stated Event Director Tom Penn.

“We have already got new features which we are working on for 2016 to ensure we go way beyond the 1,000 [attendees] mark.”

DEFEYING GRAVITY

AlterG is an American medical device company that makes mobility enhancement products for physical therapy and athletic training. At the Expo, it proudly displayed its innovative antigravity treadmill.

Revolutionising the way patients recover from injury or surgery, the Anti-Gravity Treadmill allows users to easily incorporate partial weight-bearing therapy into their rehabilitation programmes while providing physiotherapists and other clinicians with a precise, safe and user-friendly piece of equipment to monitor and accelerate patients’ physical development. The only equipment of its kind, this NASA-engineered treadmill is easy to use and can ‘unweight’ the user by as much as 80 per cent in precise 1 per cent increments, enabling them to recover faster and more efficiently.

“Since installing the treadmill three months ago we have already noticed huge benefits to our patients. We routinely use it for rehabilitation following hip and knee surgery as it increases patients’ confidence, their walking technique and challenges them in their rehabilitation. As we can reduce the force going through a patient’s leg on the machine it enables us to progressively load joints, muscles and tendons by promoting a normal walking or running pattern,” said Jon Swan, Physiotherapy Manager at The Harbour Hospital in Poole, UK. “Patients are able to walk on the machine just two days after hip or knee surgery without using crutches while the physiotherapist advises them on how to improve their walking – and this is of huge value in terms of speeding up recovery time.”
TIME FOR INNOVATION

Derek Jones has over 25 years of experience in rehabilitation engineering, bioengineering, R&D and high-level academic roles in the medical technology and healthcare sectors. *International Innovation* caught up with him prior to his keynote speech on the role of technology and innovation in rehabilitation.

To what extent is innovation in healthcare inhibited by our current resource-strained culture? How can this be addressed?

If there were not resource constraints, there would be something else that inhibits innovation. We cannot allow progress to be stopped by a poor excuse. Innovation is messy and a challenge to most people who prefer the comfort of the known. Whenever we set a goal for the future, it is completely understandable that we see barriers to achieving those goals. What I so often see is lack of resources being used as a reason to retreat into inaction. This can be addressed via leadership and developing environments that help the attitudes and beliefs of the majority to feel more comfortable with uncertainty and risk.

In your opinion, in what ways will the role of technology and innovation change the face of rehabilitation in the future?

Nobody has a crystal ball and predictions of which technologies are going to have the biggest impact are likely to be wrong. Generally, things that emerge ‘suddenly’, grabbing public awareness, probably have had a longer evolution than most people realise – perhaps 30 years or more. Rehabilitation at its best is individually tuned, with technology compensating for what the individual lacks in terms of function while also contributing to restitution, or functional recovery.

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STEPPING UP

Clare Hartigan is Program Manager at the Shepherd Center in Atlanta, Georgia, which specialises in medical treatment, research and rehabilitation for people with spinal cord and brain injury. At the Expo, she gave an insight into her research on locomotor training.

Hartigan’s presentation in the keynote seminar theatre was one of the most popular and well-attended talks throughout the two days. With over 26 years of clinical experience, she plays a crucial role in the final stage of trials for robotics-assisted walking devices that could improve the lives of those suffering from limited mobility and function. Her talk focused on the activity-based rehabilitation treatment device in the Shepherd Center’s Step Program – an innovative physical therapy regimen that uses specialised bodyweight-support treadmill systems.

Participants in the programme are suspended in a harness over a treadmill while their legs are moved to simulate walking, either by a specially trained therapist or robotic system. As function improves, patients progress from the treadmill to walking over ground.

The idea behind this device stemmed from research conducted by Hartigan and the rest of the team at the Shepherd Center, in which they studied neural plasticity and the role the spinal cord plays in stepping and standing. Encouragingly, it has had a positive impact on improving over-ground walking among individuals with some mobility in their legs.