



# WCNR 2014 *Review*

JUNE 2014

## 8th World Congress is a huge success

This year's 8th World Congress for NeuroRehabilitation, held in conjunction with the Turkish Society of Rehabilitation, was a huge success. Over 1400 neurorehabilitation clinicians and therapists from 74 countries attended the Congress in the Istanbul Lutfi Kirdar International Convention and Exhibition Centre. There were over 600 posters and more than 25 exhibitors and sponsoring companies.

The programme included pre-Congress Workshops and 'Meet the Professor' breakfast sessions, together with a scientific programme covering international research, discovery and innovation in all the major areas of neurorehabilitation including traumatic brain injury, multiple sclerosis, stroke, spasticity management and neuro-oncology. In addition there were 27 **WFNR** Special Interest Group meetings taking place concurrently.

The **WFNR** would like to thank all the sponsors of the meeting including Ipsen, Allergan and MZ Pharmaceuticals.

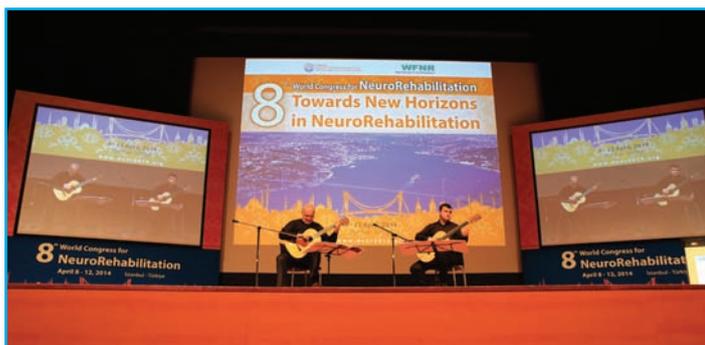
## Opening ceremony

Ayse Küçükdeveci, President of the Local Organising Committee said in her opening address: "We are here to share our knowledge, experience and new developments in the field of neurorehabilitation". She thanked everyone involved in organising the Congress and wished everyone 'an enjoyable and successful conference'.

A warm welcome was given by Stephanie Clarke, **WFNR** President: "It gives me great pleasure to open the 8th World Congress". She highlighted the multidisciplinary nature of the delegates - 'all working as a team towards a common goal – the rehabilitation of the patient'.

Dr Clarke thanked the Local Organising Committee, Turkish Society of Neurorehabilitation and the Programme Committee under the excellent leadership of Volker Homberg, Presidium colleagues and Tracey Mole, **WFNR** Executive Director.

The Ceremony ended with Ahmet Kanneci, the Turkish guitar virtuoso, who played several classical guitar pieces.



*The opening ceremony performance featuring Ahmet Kanneci.*

## Closing ceremony

Volker Homberg welcomed everyone to the 'end of a fruitful meeting'. He introduced Franz Gerstenbrand, one of the early neurologists involved in the development of neurorehabilitation.

Dr Gerstenbrand said: "Thank you for inviting me. It's a great pleasure and honour to give some closing remarks after such an exciting week. The field of neurorehabilitation has developed so much as a discipline, and contributed enormously to a better understanding of disability, and the realisation that much can be done for people after brain injury". He thanked 'our Turkish friends' for a successful meeting and concluded: "Let's meet again in Philadelphia".



*WFNR President Stephanie Clarke thanked delegates at the closing ceremony.*

## India wins the bid for the 10th World Congress in 2018...

Excellent bids were received for the 10th World Congress from the United Arab Emirates (Abu Dhabi), Greece (Athens), India (Hyderabad), the United Kingdom (Manchester) and the Philippines (Manila). This year Kenes, the **WFNR**'s official Congress organiser for 2016 onwards, was also involved in the decision process. It was decided that the Congress should move to another continent - Hyderabad won the vote.

## ...and South Africa for 2020

Those bids that were unsuccessful for the 10th World Congress in 2018 were also part of the bid for WCNR 2020, plus bids by representatives from South Africa (Cape Town) and France (Lyon). The winner was Cape Town, South Africa.

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## WFNR News

### New WFNR honorary member – Klaus von Wild



*WFNR President Stephanie Clarke welcomes Klaus von Wild as an Honorary Member.*

The **WFNR** welcomed a new Honorary Member – Klaus von Wild, Professor of Neurosurgery at Wilhelm University in Münster, Germany. He was formally presented with a plaque at the **WFNR** General Assembly.

“Klaus has been an advocate for neurorehabilitation for over 20 years. He has worked tirelessly to engage and foster networks around the world” said Stephanie Clarke, **WFNR** President.

### New editor at NNR

Randolph Nudo, Director of the Landon Center on Ageing, and Professor at the Department of Molecular and Integrative Physiology at Kansas University, USA, has recently been appointed the editor of the **WFNR**'s journal 'Neurorehabilitation and Neural Repair'. The journal ranks No.2 in the list of rehabilitation publications.

### Kelly Sinclair receives the 1st WFNR Franz Gerstenbrand Award



*Jennie Ponsford (middle) receiving the WFNR Award from Franz Gerstenbrand and Stephanie Clarke.*

Kelly Sinclair, Research Fellow at the School of Psychology and Psychiatry at Monash University in Melbourne, Australia, is the first recipient of the **WFNR** Franz Gerstenbrand Award.

The news was announced at WCNR 2014, but unfortunately Kelly was unable to attend the Congress. Jennie Ponsford, Director of the Monash-Epworth Rehabilitation Research Centre accepted the Award on Kelly's behalf.

The Award is aimed at clinicians, researchers and allied health professionals to acknowledge, recognise and reward a neurorehabilitation project that has benefitted patients. It was named after Franz Gerstenbrand, in recognition of his contribution to neurorehabilitation.

The Award is now open for new entries with a deadline of 3rd November 2014. Details of how to apply are available on [www.wfnr.org.uk/award](http://www.wfnr.org.uk/award).

### Five new national societies

Five new national societies have joined the **WFNR** representing Egypt, Greece, China, Ukraine and India.

### WCNR 2016 – Philadelphia prepares

Michael Selzer, past-President of the **WFNR**, presented plans for WCNR 2016 which will take place from the 10th to 13th May 2016. The Congress will be organised by Kenes, who have been appointed by the **WFNR** to manage its World Congresses.

### New President Elect in Philadelphia

A Nomination Committee has been formed comprising five members chaired by the existing President Elect, Leonard Li, to identify a new President Elect. Witsanu Kumthornithip, Bruce Dobkin, Julie Bernhardt, Pamela Enderby and Michael Barnes were all elected to the Committee which will evaluate prospective candidates for the General Election in Philadelphia at WCNR 2016.

All candidates interested in being the next President Elect should contact Leonard Li.

### SIG Chairs to meet in Abu Dhabi

Barbara Wilson, **WFNR** SIG Chair, announced that the next meeting of the SIG Chairs will be in Abu Dhabi in 2015. Visit the **WFNR** website for further information.

There are plans to combine SIGs with common interests, and over the next two to three years, there will be a move towards some SIGs becoming Sections.

### International spasticity survey – patients wanted!

To better understand the issues affecting adults with spasticity, and to be able to tailor support and services, the **WFNR** has partnered with Ipsen to conduct an international survey 'Patients Living with Spasticity'.

The survey aims to gain insight into patients' perspectives of their overall care, the impact of spasticity on their daily lives, the information available to them, as well as their satisfaction regarding clinical care and treatment.

The questionnaire comprises just 31 questions – so encourage your patients and their carers to complete the survey. It is available in French, German, Italian, Spanish, Russian and Portuguese and responses are recorded anonymously. The survey is available on the **WFNR** website - <http://wfnr.co.uk/education-and-research/international-patient-survey> or <http://uk.visioncriticalsurveys.com/R.aspx?a=813>

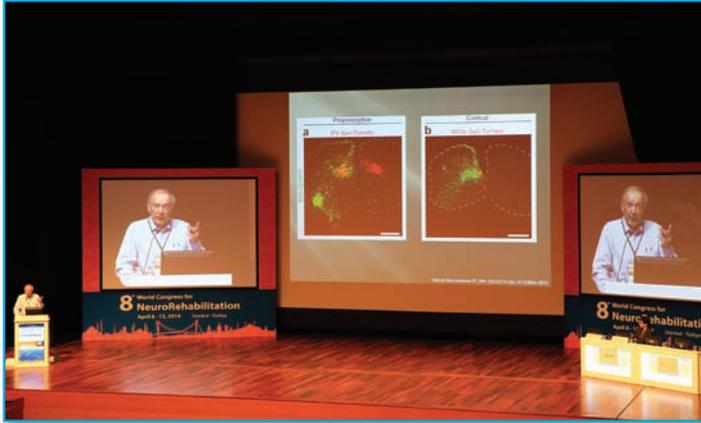
## Key Note Lectures: Overview

### The 3rd Michael P Barnes Lecture

#### Motor learning and neurorehabilitation after brain injury

*Leonardo Cohen, USA*

The 3rd Michael P Barnes Lecture, delivered by the eminent Leonardo Cohen was the opening presentation of the 8th World Congress.



*The 3rd Michael P Barnes Lecture was given by the eminent Leonardo Cohen.*

Dr Cohen discussed the 'state-of-the art' with regard to learning and its role in developing training programmes for stroke patients. Exercise and training are well established treatments for improving motor function after stroke, however, researchers are now looking to improve training strategies and therapies that are based on motor learning principles which can enhance the effects of rehabilitative protocols.

He guided the audience through the concepts that frame current research and enable the development of further understanding in the area. All training periods have 'offline' improvements; referred to as 'slow' or 'late stage' learning. Offline forgetting also occurs. Dr Cohen asked: "Is it possible that if the schedule of each training session is changed, then offline forgetting could be transformed into learning?". The answer is currently unknown.

The theory that once a memory is consolidated, it is there forever, is now known not to be the case. "There are no forever memories" said Dr Cohen. Memory reactivation leads, together with environmental factors, to memory modification. Every memory that is consolidated is modified. "Memory modification or reconsolidation is important from a rehabilitation perspective - this is a relatively new concept and is not well understood" he said.

Improvement in our understanding of the neuroplastic processes associated with post-stroke motor impairment, and understanding the mechanisms of neuroplasticity are crucial. Dr Cohen discussed reconsolidation after stroke and memory

gain with training. More needs to be known about the training schedules in order to optimise memory consolidation.

Sleep also has an important role in rehabilitation. The learning that takes place during training is one element, but the overnight 'learning' is also important. In answer to a question from the audience about whether sleep medication was beneficial, especially for those patients in hospital, Dr Cohen said: "Sleep medication is a tricky issue – patients need sleep and they don't sleep well in hospital. But many sleep modifications are blockers of neuroplasticity and should be used with caution".

Dr Cohen concluded his lecture by saying: "We need to understand the different stages of learning after stroke or traumatic brain injury- this will enhance our ability to develop interventions".

### Theory and practice of neuropsychological rehabilitation: To what extent is it clinically and cost-effective?

*Barbara Wilson, UK*

It is important to understand all the models used to assess the clinical efficacy and cost-effectiveness of neuropsychological rehabilitation. However, Dr Wilson opened her presentation by stating that: "Most people with brain injury have several co-existing problems, so it's unlikely that any one model, theory or framework, can address these difficulties. Being constrained by one theoretical model can lead to poor clinical practice". She continued: "Randomised controlled trials in rehabilitation are difficult and they are not necessarily the best way to evaluate neuropsychological rehabilitation".

Dr Wilson advocated the use of single case experiments and said: "They are scientific and perfectly publishable".

Dr Wilson demonstrated 'plenty' of evidence to show that neuropsychological rehabilitation is clinically effective. A meta-analysis by Cicerone in 2011 found that neuropsychological programmes can improve community integration, functional independence and productivity, even for patients who are many years post-injury. Van Heughten *et al* (2012) looked at 95 randomised clinical trials carried out between 1980 and 2010 and concluded that there is a large body of evidence to support the efficacy of cognitive rehabilitation. Although rehabilitation may be expensive in the short-term, there is evidence that it is cost-effective in the long-term (Wilson, Winegardener and Ashworth 2013).

"The costs of not rehabilitating people with brain injury are considerable, given the fact that many are young with relatively normal life expectancy" said Dr Wilson.

## Establishing neurorehabilitation in developing countries: A training experience in a low resource country

*Anne Chamberlain, UK*

Rehabilitation is often not seen globally as a health priority, but it is gradually being acknowledged that non-communicable disorders such as stroke are an increasing burden on low and middle, as well as high income countries. Low income countries need help with training, but such programmes need to take account of cultures and constraints.

Dr Chamberlain discussed a training programme carried out in Leeds, UK together with the Ministry of Health in Madagascar, a country with a population of 23 million people. The programme, which ran for 50 days over two years, was delivered mainly from a team in Leeds but also supplemented by local training, and enabled eight doctors to gain a mid-level diploma in rehabilitation medicine. Ten physiotherapists received multidisciplinary training with them.

## Biaggi de Blasys Lecture: Have concepts of motor control been helpful for neurorehabilitation?

*Emilio Bizzi, USA*

The **WFNR** was honoured this year to have the Gianni Biaggi de Blasys Foundation supporting the WCNR 2014 plenary lecture delivered by Dr Emilio Bizzi.

Dr Bizzi introduced his lecture by saying: “I am a neurophysiologist with an interest for clinical programmes who wants to find ways to understand and improve the practice of neurorehabilitation”. When the Central Nervous System (CNS) generates voluntary movement, many muscles, each comprising thousands of motor units, are simultaneously activated and coordinated; computationally this is a daunting task. In the last few years researchers have been looking for physiological evidence of so-called simplifying strategies, by exploring whether the motor system makes use of motor modules to construct a large set of movement.

Dr Bizzi said: “There are lots of things we don’t know about how the brain controls movement. Movement involves a large number of muscles and the space that the CNS has to control is enormous; there must be a strategy to control this huge number of motor neurones that makes it possible for us to react fast to a stimulus”. Initially studies looked at the spinal cord in several vertebral species; the results provided the experimental basis for a modular organisation of the spinal cord circuitry in vertebrates. A spinal module is a functional unit of spinal interneurons that generates a specific motor output by imposing a specific pattern of muscle’s activation in a muscle synergy.

Most voluntary movements are the result of the simultaneous activation of a few muscle synergies via descending or afferent pathways. Dr Bizzi looked at the explicit encoding of muscle synergies in the nervous system and how muscle synergies simplify movement. The basis of continuing research is looking at the use of synergies as a marker of what is going on in the

affected limb, with a view to being able to use the markers in neurorehabilitation.

## Neglect rehabilitation – from evidence base medicine to clinical practice

*Gilles Rode, France*

Dr Rode expertly provided an overview of neglect which can interfere with rehabilitation processes and lead to poor functional outcome in right-brain damaged patients. A recent Cochrane Review of 23 random controlled trials involving 628 participants with stroke showed the effectiveness of cognitive rehabilitation interventions for reducing the disabling effects of neglect.

An increasing number of techniques have been developed to help the recovery of neglect patients; Dr Rode looked at the role of Prism Adaptation (PA) and presented a study looking at a once weekly regime of PA but concluded: “More work is needed to validate the optimal use of PA”.

## Outcome measures in traumatic brain injury: A review

*Robyn Tate, Australia*

“The importance of assessment in neurorehabilitation must not be underestimated” said Robyn Tate in her presentation of a systematic review of outcome measures in traumatic brain injury. The review covered 693 instruments; only English language journals and instruments that were available in English were considered, and the patients’ perspective was key.

Dr Tate commented that there are reports available, produced by expert panels and task forces, to guide the choice of outcome measure, but they are often poor in quality and the decision-making criteria frequently unclear. “The problem is one of choice and what criteria guides that choice?” said Dr Tate.

She re-iterated what Barbara Wilson, UK had said in her Plenary Lecture: “The user needs to choose the right instrument, but who should determine which measurement should be used? No one size fits all. You need thoughtful consideration in deciding what is suitable for a patient. Researchers and clinicians need to make their own informed decisions”.



*The Congress was supported by over 25 companies.*

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## Meeting Highlights

### Neural repair and functional recovery following stroke

Nick Ward (UK) looked at the use of non-invasive techniques such as functional magnetic resonance imaging and magnetoencephalography, as a means of monitoring the changes in human brain organisation after stroke. These imaging techniques can study brain organisation at multiple levels, ranging from large scale networks to alterations in synaptic physiology. The techniques provide the appropriate intermediate level of description in order to bridge the gap between what is known from animal models, about recovery after stroke, compared to what we know from studies of behaviour in humans.

A more detailed knowledge of how these processes are related to impairment and recovery following stroke will provide a mechanistic framework for understanding how to treat patients more effectively. Functional brain imaging can then become a clinically use tool in rehabilitation, particularly for predicting outcomes and responses to novel plasticity enhancing therapies.

“The important thing to note is that neuroimaging needs to inform what kind of treatment is required, and not whether treatment should be used” concluded Dr Ward.

Jane Burridge (UK) examined the relative impact of the reduction in impairment and adaptation strategies to functional recovery. Traditionally post-stroke trials demand large numbers of patients. Dr Burridge challenged the way trials are done especially with regard to the numbers of patients required for randomised trials. A percentage of patients taking part in the trials will not respond to the intervention. Selecting patients for a trial when you know the intervention will not work also presents an ethical issue.

Dr Burridge reviewed four trials focussing on outcomes, but presented an alternative approach if the studies were reviewed from the viewpoint of recovery potential. She said: “Predictors of recovery will help to indicate the nature of the intervention and when it should be used. There is a need to change the trial model that is currently used . We do not know how to select patients and this is clearly important for the outcome of the trial. Personalising interventions through better understanding of the patient may lead to better outcomes in research”.

### Errorless learning and other treatments for aphasia

Barbara Wilson (UK) and Karen Sage (UK) discussed the use of errorless learning (EL), a teaching technique whereby people are prevented, as far as possible, from making mistakes while they are learning a new skill or acquiring new information. This can be carried out in many ways such as providing spoken or written instructions or guiding the person through the task. The principle is to avoid mistakes being made during learning and to minimise the possibility of erroneous responses – in order to benefit from our mistakes (trial-and-error learning) we need to be able to remember them.

First used with pigeons in the 1960s, EL was adopted in the field of learning disability and then taken up in the field of memory rehabilitation with the first paper published in 1994 demonstrating its value for people with severe memory deficits. Recently EL has been explored as a method to help word re-learning for people with aphasia after stroke.

Pam Enderby (UK) discussed a review of aphasia treatments and demonstrated that different strategies used by speech and language therapists are effective. Some therapies have features that may make the treatment more successful e.g timing, intensity and the involvement of family and friends. Research has also demonstrated that lay people can be trained effectively to deliver some aphasia therapies. Dr Enderby said: “It is important to remember that therapy effectiveness strongly relies on patient participation and motivation”

### Assessing fitness to drive following stroke and brain injury

Shawn Marshall (Canada) looked at the issues relating to driving post-stroke and brain injury. Dr Marshall said: “It is imperative that these patients can return to driving as soon as possible. It provides them with their independence and a means of re-integration into the community. But the subject is complicated”.

Several questions were posed: Are doctors able to judge fitness to drive? Is there an increase in the number of accidents with patients driving following a traumatic brain injury? Are existing guidelines appropriate?

Dr Marshall discussed the research comparing international driving guidelines, and highlighted the limited evidence and availability of guidelines for health care professionals. He concluded: “We need assessment before a return to driving; post-stroke and brain injury requires a functional approach. On-road assessment remains the gold-standard for measuring ability to drive but other methods are being developed”.

### Should paediatric brain injury be treated as a chronic condition? An international perspective

Dr Ronald Savage (USA) introduced his presentation by pointing out that there are very few sessions about children with brain injury at the Congress. “There should be more because children with brain injury become adults with a brain injury” he said.

Dr Savage said: “There is a tendency to think of brain injury in a child as a singular event and that they miraculously get better. If we acknowledge that it is a long-term chronic condition, and that other things can happen down the road, then we can be ready for it. We do that for children with other conditions such as cancer and cerebral palsy, but for children with brain injury we wait until they fall apart and then we make them better.”

The lecture by Dr Savage looked at the data and research on the long-term chronic effects of traumatic brain injury on children as they continue to develop and age into their adult years. Many children, adolescents and young adults sustain injuries to their frontal temporal brain regions, and as a result, experience long-term chronic deficits in executive functioning skills, personality changes and behaviour deficits. These deficits will continue to negatively impact functioning in their adult years.

“If we can predict what issues these children will have, then we can predict the services they will require. If we understand that this is a chronic issue, then it will be a benefit to the children and their families”. He highlighted that many of these young people end up in psychiatric services and in prison. This population are also known to be a high risk in later years for dementia and Parkinson’s disease.

Ingela Kristiansen (Sweden) said: “We need evidence guidelines to help with the prognosis in children with brain injury. We need follow-up methods for these children, an appropriate multidisciplinary team, together with the right help and support available for the children and their families”. This was supported by Carol Hawley (UK) who said that many children return home without follow-up or information about rehabilitation which results in families and schools becoming the major rehabilitation providers.

Dr Savage concluded: “This issue is a developing phenomena – it’s global. When we think of children with a disease such as cancer then we manage them long-term. That’s what we need to do for children with a brain injury”.

## Music plays its part

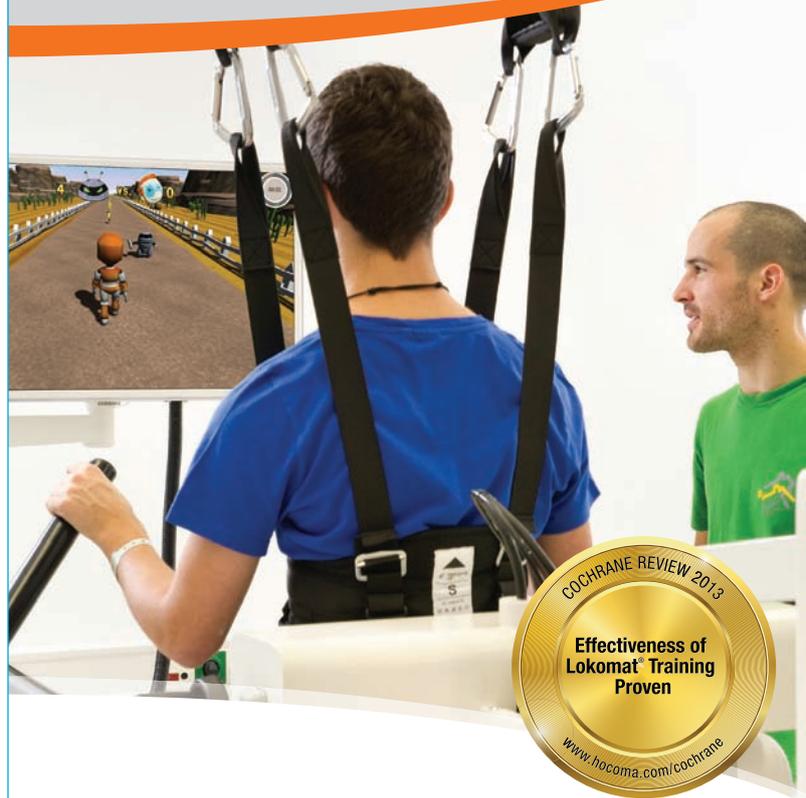
The wealth of evidence supporting the role of music in neurorehabilitation continues to grow, and Michael Thaut (USA) provided an expert tour of the various studies that have contributed to the understanding of the role and function of music in therapy and medicine over the last 15 years.

Neurologic Music Therapy (NMT) uses the structures and patterns in music to retrain motor, speech and language, and cognitive functions in neurologic disorders. Marco Molinari (Italy) discussed the research that links the cerebellum with the ability to generate the prediction of events in motor and cognitive domains, and in general linking the cerebellar processing to music perception and expertise. Dr Molinari said: “The cerebellum is involved in the prediction of sequencing - it allows us to predict correctly the movement to the target”.

Kamal Chemali (USA), a neurologist and a conservatory-trained pianist has established a Music and Medicine Centre in a large, not-for-profit USA healthcare institution based in Virginia. Dr Chemali said: “It is difficult to justify building a music and medical programme in the USA from the cost perspective – it is difficult to get music services re-imbursed. We have to demonstrate that music brings added-value”. The Sentara Music and Medicine Centre provides extensive music

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therapy services from music medicine to music rehabilitation. “Music is used to ‘normalise’ what is considered to be a stressful environment” said Dr Chemali. His research found that in this environment patients’ pain levels are reduced, anxiety levels decrease and patient satisfaction is positive. “It is important to convince the hospital that the music programme is not a separate programme but can enhance existing services” said Dr Chemali.

## Robotic developments

“The use of robots in rehabilitation, particularly in the upper extremity, has matured over the last few years and there are now guidelines to support their use, e.g the 2010 American Heart Association guidelines for stroke care, and the 2010 Veterans Administration (VA)/Department of Defence guidelines” said Hermano Igo Krebs (USA). There are also an increasing number of trials underway to demonstrate clinical and cost-effectiveness. Delegates heard from Eiichi Saitoh (Japan) about the ToFuture (Toyota-Fujita Technology Utilisation for Rehabilitation Evolution) Project involving the development of four rehabilitation robots, one of which, the Balance Exercise Assisted Robot (BEAR) is at an advanced stage. BEAR uses the inverted pendulum control mechanism whereby the centre of gravity movement of the user is transformed into robot locomotion. Preliminary studies with BEAR have demonstrated an improvement in dynamic balance and muscle strength, especially in the muscles around the ankle, and a multicentre study is about to commence.

Robot Assisted Training for the Upper Limb after Stroke (RATULS) is a UK multicentre study funded by the Department of Health. This randomised trial, which opened last month, and is independent of the robot manufacturers, involves four centres in Glasgow, Romford, Cambridge and North Tyneside, each consisting of a stroke unit hub site with an InMotion robotic gym system and up to three adjacent stroke and community services sites. Helen Rodgers (UK) said: “We aim to recruit 720 participants with acute or chronic first ever stroke causing moderate to severe upper limb functional limitation. There are three randomised groups: robot-assisted training using the inMotion robotic gym system, enhanced upper limb therapy and the usual care”. Robot assisted training will be provided for one hour, three times per week, for 12 weeks. The results are not expected until 2018.

## Telerehabilitation – an alternative to inpatient treatment?

The focus of stroke care has traditionally been in the acute setting. As patients are increasingly being discharged earlier, the rehabilitation has to continue in the community. As Katharina Sunnerhagen (Sweden) said in: “For this to happen a shift in the way the care is delivered needs to take place”.

Telerehabilitation has the potential to deliver rehabilitative services safely and inexpensively to patients who are homebound or in remote locations, the capacity to monitor patient performance remotely and customise interventions for them and the capacity to monitor adherence and provide

incentives to improve engagement and adherence. “But can it deliver?” asked Michael Weinrich (USA). A recent Cochrane review on the role of telerehabilitation in stroke was guarded. Demonstrating cost-effectiveness in large randomised trials is not yet feasible until more issues have been resolved relating to how this technology is used to deliver services.

Francisco Benvenuti (Italy) described the CLEAR project where a home-based exercise programme for chronic upper extremity paresis, secondary to stroke, was developed and delivered to patients in home and community-based settings through a low-cost web-based platform. The experimental group was instructed to practice the exercises at least three days a week at home and twice a week at a ‘kiosk’ using the platform. Compared to the control group who received usual care, patients in the experimental group demonstrated significant gains in arm function with high satisfaction ratings. However only 30% of subjects attended the ‘kiosks’ regularly, suggesting that telerehabilitation interventions need additional enhancements to improve their effectiveness.

Mary Stuart (USA) discussed the use of Functional Activity Monitors (FAMs) in the community. FAMs have been used for several years but now there are more sophisticated monitors available that enable measurement of type and level of activity, attributes of gait and posture, falls, and physiological measures such as heart rate. Information can be transmitted in real time or downloaded at a future date. A recent trial showed that FAMs can promote self-management in a community setting for people with Parkinson’s disease. Dr Stuart said: “Further research is needed to determine the best strategies for use and to manage the large databases that can be generated by these devices”.

## Neurorehabilitation in the developing world – making a difference

The economic progress in the developing countries is resulting in higher living standards and longer life expectancy. However, the subsequent ageing population is now exposed to more age-related health problems such as stroke, Alzheimer’s Disease, other dementias and Parkinson’s disease. More and more people in the developing countries are functionally impaired and become disabled as a result of these neuropathies. Neurorehabilitation has a major role to play in reducing this disability, but the availability and accessibility of services varies depending on the level of economic and social development.

“There is an urgent need to develop an integrated neurorehabilitation programme for Africa, building on existing resources” said Mayowa Owolabi (Nigeria). Africa, with its population of over 1.3 billion, like many other developing countries, is experiencing an increase in the burden of non-communicable neurological diseases with a major impact on functioning and quality of life. In Sub-Saharan Africa there is an average of one neurologist to one million people in comparison to one per 100,000 in high income countries.

Poverty is a major contributor to the causes of disability and is the primary cause of the inability to provide

rehabilitation. Some developing countries can provide limited neurorehabilitation services, but generally the quality is limited due to the lack of 'infrastructure' and resources available. There is also a lack of awareness of the nature, extent and causes of disability and a lack of appropriately trained rehabilitation personnel from rehabilitation medicine clinicians to therapists. Cultural differences are also an issue.

"We need long-term efforts, including investment in rehabilitation equipment and the funding of continuous education programmes by governments, non-governmental organisations, international organisations and other interested parties" said Tong Zhang (China). As Nirmal Surya (India) said: "There is a lack of political interest amongst developing world governments – disability doesn't get votes".

Michael Barnes (UK) and **WFNR** Treasurer said: "There is pressing need to establish facilities, to train experts and to address the lack of available treatment so that every country has a uniform level of rehabilitation service. With the **WFNR** skill and expertise we can make a difference". Dr Barnes outlined several ideas including a Position Statement to lobby governments and organisations, information and advice on the **WFNR** website, local meetings, identify, support and promote a local champion, work with the industry, disseminate journals more widely, improve knowledge via the flying faculty, local and online training.

## Satellite Symposia

### Allergan Workshop – Pain management spasticity and ultrasound guided Botox injections

Sehim Kutlay (Turkey) opened the Allergan Workshop by outlining the mechanism of toxin action with emphasis on the concentration differences between the available products. The Workshop focused on post-stroke spasticity which occurs in 19-22% of patients after stroke and the common issue of pain which occurs in 80% patients.

"We have always recognised that pain occurred in stroke patients but now we know that we can do something about it" said Tony Ward (UK). Patients need to have the correct posture, Dr Ward said: "Seating posture is crucial. Just look at your patients in their wheelchairs and make sure they are seated correctly. It's a simple thing but it will have a huge result" he said.

Dr Ward continued: "Spasticity causes pain – there are many reasons why these two may be associated - and if pain is reduced, so too is the spasticity. Patients spend a short time in



The WFNR Council met during the Congress in Istanbul.

hospital after a stroke and then go home with the family left to cope with many issues that arise, including pain. At six months 50% of stroke patients at six months reported new pain which impacts on daily life. We need to look at new ways of managing pain and botulinum toxin has a role". Dr Ward then gave an expert, interactive and practical workshop on ultrasound guided injections of botulinum toxin, including patient evaluation and assessment, injection procedure and dosage.

### Opening new horizons for patients living with spasticity – Ipsen satellite

"Spasticity manifests itself in all sorts of ways for the individual and we need to take account of what patients consider to be the priority goals for their rehabilitation" said Michael Barnes (UK) in his introduction to this Ipsen Satellite Symposium which focussed on spasticity from the patients' perspective.

Patricia Khan (Brazil) explored ways in which to optimise the patient's journey from diagnosis to long-term treatment. Klemens Fheodoroff (Austria) discussed the multicentre, observational ULIS 2 study which investigated goal attainment of post-stroke patients with upper limb spasticity treated with botulinum toxin. This study also provided the opportunity to investigate whether person-centred goal selection and/or achievement is influenced by a variety of patient and therapy related factors.

"We should do our best to involve our patients in their rehabilitation and this requires a certain state of mind and key rehabilitation techniques" said Jean Michel Gracies (France). The economic constraints on the provision of healthcare necessitates an alternative rehabilitation system for the patient and Dr Gracies discussed a 'Guided Self-Rehabilitation Contract' which can result in meaningful functional improvements in the chronic stage, as long as the discipline is maintained for at least a year. Another approach to opening new horizons for patients living with spasticity and tailoring treatment is to expand the pharmacological armamentarium. Keith Foster, UK discussed the future of toxins and how Ipsen advances in science can help meet unmet clinical needs.

### IISART

The International Industry Society in Advanced Rehabilitation Technology (IISART), founded in 2011, is dedicated to advance and promote modern healthcare technology in rehabilitation for the benefit of the patient and society at large. The main focus of the organisation is on Robotics, Virtual Rehabilitation and Therapeutic Electrical Stimulation. IISART represents the interests of companies developing, manufacturing, and marketing medical devices and their accessories and active capital medical equipment in the field of robotics and advanced healthcare technology in rehabilitation.

The focus of the satellite was to provide increased understanding of robots, their role and how they can they best help patients.



Delegates enjoyed a gala dinner by the Bosphorus.

## New books announced

Three new books were announced at the Congress:

### Self-identity after brain injury

This is the first book of its kind dedicated to self-identity issues after brain injury which integrates theory and research, and also assessment and intervention strategies.

Written by Tamara Ownsworth, a teaching and research academic in the School of Applied Psychology, Griffith University in Brisbane, Australia, the book is aimed at all health professionals in the brain injury area.

### Survivors' stories

Barbara Wilson, Chair of the **WFNR** Neuropsychological Rehabilitation SIG, is the co-author of a book entitled 'Life After Brain Injury: Survivors' Stories'. This is the first book of its kind that documents the personal accounts of people who have survived brain injury, together with therapists' reports of their progress through rehabilitation.

Life After Brain Injury: Survivors' Stories is written by Barbara Wilson, Jill Winegardner and Fiona Ashworth.

Self-Identity after Brain Injury and Survivors' Stories are both published by Psychology Press, Taylor & Francis Group. Copies are available from [www.psypress.com](http://www.psypress.com)

### Textbook of neural repair and rehabilitation

The 2nd edition of this textbook edited by Michael Selzer, Stephanie Clarke, Leonardo Cohen, Gert Kwakkel and Robery Miller is now available. In two volumes - available individually and as a set - the Textbook of Neural Repair and Rehabilitation provides comprehensive coverage of the science and practice of neurological rehabilitation. Volume 1 - Neural Repair and Plasticity - covers the basic sciences relevant to recovery of function following injury to the nervous system. Volume 2 - Medical Neurorehabilitation - stands alone as a clinical handbook for neurorehabilitation.

The textbook is available from: [www.cambridge.org](http://www.cambridge.org)

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## DIARY DATES

**31 October - 2 November 2014**  
**INTERNATIONAL CONFERENCE ON NEURO REHABILITATION**  
Islamabad, Pakistan  
[www.nrc.org.pk](http://www.nrc.org.pk)

**13 -14 November 2014**  
**ASNR ANNUAL MEETING**  
Washington, USA  
[www.asnr.com](http://www.asnr.com)

**6-17 April 2015 (dates are provisional)**  
**WFNR CERTIFICATE COURSE IN NEUROLOGICAL REHABILITATION**  
Seongnam, South Korea  
E: [njpaik@snu.ac.kr](mailto:njpaik@snu.ac.kr)

**21-22 May 2015**  
**CONGRESS ON NEUROREHABILITATION AND NEURAL REPAIR**  
(Dutch Society for NeuroRehabilitation with participation of the Belgian Society for Neurorehabilitation)  
Maastricht, The Netherlands  
[www.NeuroRehab2015.eu](http://www.NeuroRehab2015.eu)

**26-29 July 2015**  
**2ND WORLD CONGRESS ON HEALTHY AGEING**  
Johannesburg, South Africa  
[www.wcha2015.com](http://www.wcha2015.com)

**26-28 August 2015**  
**7TH BIENNIAL SANRA CONFERENCE**  
Johannesburg, South Africa  
[www.sanra.org](http://www.sanra.org)

**3-5 December 2015**  
**IX INTERNATIONAL SYMPOSIUM ON SPINAL CORD INJURIES**  
Brescia, Italy  
[www.midollospinale.com](http://www.midollospinale.com)

**December 2015**  
**EUROPEAN CONGRESS OF NEUROREHABILITATION**  
Vienna, Austria  
E: [traceymole@wfnr.co.uk](mailto:traceymole@wfnr.co.uk)

**10-13 May 2016**  
**9th WORLD CONGRESS FOR NEUROREHABILITATION**  
Philadelphia, USA  
[www.wcnr2016.org](http://www.wcnr2016.org)

**29 May – 2 June 2016**  
**10TH WORLD CONGRESS OF INTERNATIONAL SOCIETY OF PHYSICAL AND REHABILITATION MEDICINE**  
Kuala Lumpur, Malaysia  
[www.isprm2016.com](http://www.isprm2016.com)

