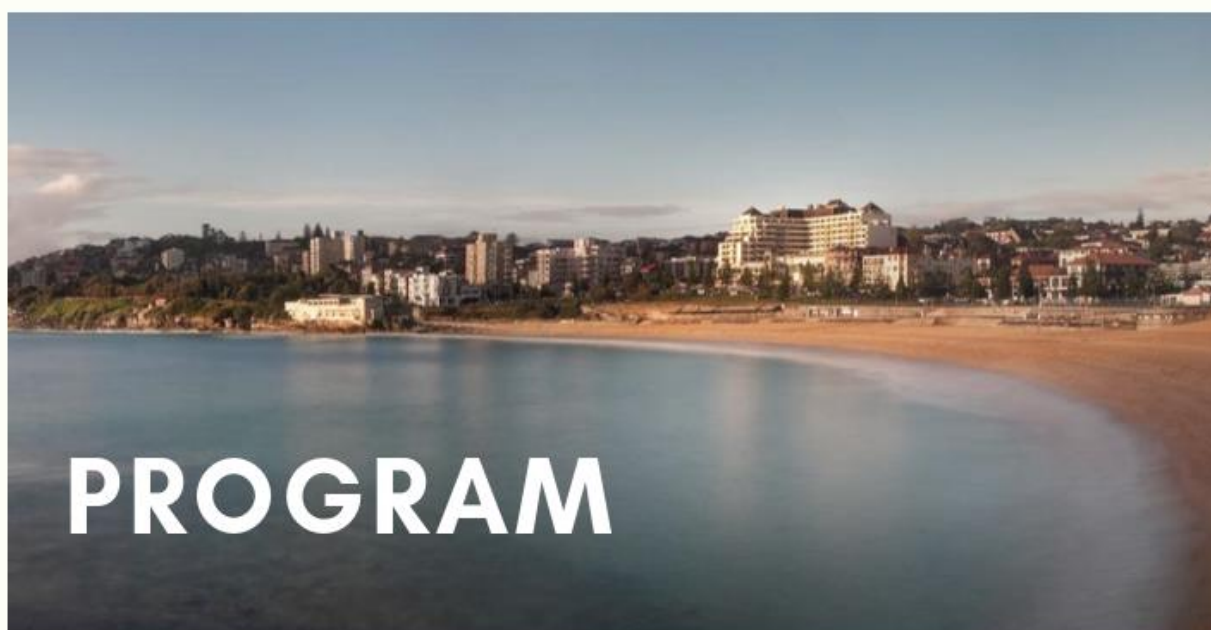


26-28 NOVEMBER 2018
COOGEE, SYDNEY AUSTRALIA

FIRST INTERNATIONAL MOTOR IMPAIRMENT CONFERENCE



PROGRAM



IN BRIEF:

- Monday 26 Nov
- 8.00am registration opens
 - 8:45am-10.45am - Session 1
 - 11.15am-12.45pm - Session 2
 - 1.30pm-3.00pm - Session 3 Posters
 - 3.30pm-5.00pm - Session 4
 - 5.00pm-7.00pm - Welcome drinks
- Tuesday 27 Nov
- 9.00am-10.45am - Session 1
 - 11.15am - 12.45pm - Session 2
 - 12.45pm - 6.30pm - Free time
 - 6.30pm Conference Dinner
- Wednesday 28 Nov
- 9.00am - 10.30am - Session 1
 - 11.00am - 12.30pm - Session 2
 - 1.30pm - 2:42pm - Session 3
 - 3.15pm - 5pm - Session 4

Dear Delegates,

Welcome to the **First International Motor Impairment Conference - Sydney 2018.**

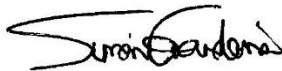
The meeting is designed to highlight the various facets of Motor Impairment. Motor impairment has many elements: weakness and fatigue, sensory impairments, problems with falls and balance, muscle contractures, and many more. It is characterised by major deficits in the activity of daily life and it is a progressive accompaniment to aging. The stimulus to study, develop, and promote the topic of Motor Impairment came from preparation for an NHMRC Program grant awarded to Stephen Lord, Rob Herbert, Janet Taylor and me.

Over the three days we will have 9 sessions of oral presentations, including one devoted to presentations by Young Investigators. There are more than 30 posters which will be up throughout the meeting and available at multiple times for discussion. A wide range of topics associated with aspects of Motor Impairment will be covered, all the way from a fundamental approach to an effective clinical translation.

To host the meeting we have been helped by underwriting from NeuRA (Neuroscience Research Australia) as well as grants from the NSW Government, KHINN (Knowledge Health Innovation), CED (Cambridge Electronic Design Ltd), Symbiotic Devices, and the Journal of Physiology. We are grateful to all sponsors for their financial and other contributions. The most recent help from the Journal of Physiology is especially welcome.

We hope you enjoy your stay at Coogee in Sydney and get to savour the local environment (try a walk along the ocean front either north or south). Hopefully, dinner at the Museum of Contemporary Art overlooking the harbour will be a social highlight.

Sincerely,



Simon Gandevia

(on behalf of the organising group Stephen Lord, Janet Taylor, Rob Herbert)

We are grateful for local help from the following:

Andrew Cartright and assistance from Annie Butler, Bronwyn Chapman, Joanna Diong, Martin Héroux, Anna Hudson, Euan McCaughy, Jasmine Menant and Daina Sturnieks.

Many thanks also to the Scientific Committee: Jane Butler, Simon Gandevia, Rob Herbert, Stephen Lord and Janet Taylor.


With thanks to our **GOLD** Sponsors:



SILVER Sponsor



First International Motor Impairment Conference 2018

DAY 1: MONDAY 26 NOVEMBER 2018		
		
Session 1:	Time	MUSCLE - 8.45am-10.45am
Chairs: Simon Gandevia & John Rothwell	08:45	SIMON GANDEVIA – Opening remarks
	09:00	TONY BLAZEVICH Training-induced changes in muscles
	09:30	JAMES WAKELING Prediction of performance from muscle models
	10:00	BART BOLSTERLEE Regional hypertrophy in the human quadriceps following progressive resistance training
	10:15	TREVOR ALLEN What can isometric contractions tell us about muscle injury and rehabilitation?
	10:30	JOANNA DIONG Involuntary muscle activity reduces passive range of motion at known torque
Morning tea		10:45-11:15am
Session 2:		RESPIRATION - 11:15am-12.45pm
Chairs: Jane Butler & Claire Boswell-Ruys	11:15	BILL SHEEL The respiratory musculature: impairments and limitations in health and disease
	11:45	ANNA HUDSON Age-related adaptations in the neural control of the human diaphragm muscle
	12:00	DAVID NGUYEN Neural drive to the diaphragm in cervical spinal cord injury
	12:15	HANNA HENSON Sleep apnoea in people with multiple sclerosis
	12:30	JESSICA BEAMISH Transient, broad field, visual input strongly modulates reactive saccade latency
Lunch		12:45-1:30pm
Session 3:		POSTERS 1:30-3:00pm <i>See separate poster list</i>
Afternoon tea		3:00-3:30pm
Session 4:		BALANCE - 3.30pm-5:00pm
Chairs: Stephen Lord & Daina Sturnieks	3:30	BRIAN DAY Am I the right way up? Disturbances of spatial orientation in variants of Alzheimer's disease
	4:00	ELEFThERIA GIANNOULI A novel group-based stepping exercise program to improve fall risk factors in older adults: first results of a pilot study
	4:15	MIRJAM PIJNAPPELS Adaptive, reactive and daily life gait in older populations
	4:45	MORAG TAYLOR The relationship between white matter hyperintensity clusters (size and location) and prospective falls in older adults across the cognitive spectrum
End of Day 1		5:00pm – Followed by welcome drinks reception 5pm-7pm. Read more about the welcome drinks reception.

DAY 2: TUESDAY 27 NOVEMBER 2018

Session 1:	Time	CONTRACTURE & MORE - 9.00am-10.45am
Chairs: Robert Herbert & Glen Lichtwark	09:00	RICK LIEBER Mechanisms of contracture
	09:30	AMY ADKINS Early Evidence for a decrease in biceps optimal fascicle length based on in vivo muscle architecture in Chronic Hemiparetic stroke
	09:45	ZEV RYMER Changes in muscle architecture after hemispheric stroke can adversely affect efficiency of muscle contraction in pennate muscles
	10:00	TAYLOR DICK A speed-adaptive myoelectric ankle exoskeleton to improve post-stroke walking performance
	10:15	PETER MALLIARAS People with Achilles tendinopathy display greater force fluctuations than controls at low force levels
	10:30	MORGAN EVELEIGH A finite element method for integrated design and testing of 3D printed ankle and foot orthoses for children with cerebral palsy and motor impairment
Morning tea		10:45-11:15am
Session 2:	Time	BRAIN STIMULATION & STROKE - 11:15am-12.45pm
Chairs: Janet Taylor & Irene di Giulio	11:15	JOHN ROTHWELL Brain stimulation and treatment of motor impairments
	11:45	ANN-MAREE VALLENCE Characterizing age-related changes in supplementary motor area-primary motor cortex connectivity.
	12:00	IRENE DI GIULIO Effect of STN-DBS frequency on postural performance in Parkinson's disease
	12:15	CJ HECKMAN Distortions in the synaptic organization of motor commands to proximal and distal muscles following hemiparetic stroke
	12:30	JULIUS DEWALD Increased dependence on contralesional cortico-reticulospinal pathways a form of maladaptive plasticity post hemiparetic stroke?
Lunch		12:45-end of day
Sightseeing and enjoying Sydney followed by conference dinner at the Museum of Contemporary Art 6.30pm – 10.30pm. Visit the Conference website for more details.		

DAY 3: WEDNESDAY 28 NOVEMBER 2018

Session 1:		
Time		MOTOR CONTROL - 9.00am-10.30am
Chairs: Martin Héroux & Graham Kerr	09:00	RANDY FLANAGAN Coming to grips with sensorimotor control
	09:30	LEAH BENT Stochastic resonance can enhance cutaneous reflex responses in the lower limb
	09:45	JAYNE GARLAND Do reactions to balance perturbations improve with Fast muscle Activation and Stepping Training in sub-acute stroke?
	10:00	SEAN DUKELOW Using robots and other techniques to guide stroke rehabilitation
Morning tea		10:30-11:00am
Session 2:		
		STANDING AND FALLS - 11:00am-12.30pm
Chairs: Kim Delbaere & Mirjam Pijnappels	11:00	IAN HARRIS Evidence-based surgery
	11:30	JOANNE KUA The effects of a specialized treadmill system on gait speed and gait parameters for older adults with high falls risk
	11:45	KIM VAN SCHOOTEN The effect of central processing and muscle torque development speed on balance recovery during standing
	12:00	KATE CARROLL Footsteps, falls and functional ambulation in children with neuromuscular disease
	12:15	GRAHAM KERR Objective assessment of upper limb tremor distinguishes Parkinson's fallers and non-fallers and is predictive of future falls
Lunch		12:30-1:30pm
Session 3:		
		YOUNG INVESTIGATORS - 1:30-2:42pm
Chairs: Karen Sógard & Jayne Garland	1:30	KEVIN GILMORE The effects of demyelination in Chronic Inflammatory Demyelinating Polyneuropathy on neuromuscular properties, muscle quantity & quality.
	1:42	HARRISON FINN Firing of fatigue-sensitive small-diameter afferents of the calf muscles impairs maximal contractions of the knee extensor muscles
	1:54	SHARI O'BRIEN Visuomotor ankle force training in individuals with spastic cerebral palsy compared to their typically developed peers.
	2:06	ZOE DJAJADIKARTA Ankle proprioception in people with Multiple Sclerosis
	2:18	LYNDON SMITH Impaired sensorimotor control of the hand in congenital absence of functional muscle spindles
	2:30	PAULO PELICIONI Cognitive contributions to the control of balance during stepping in young & older adults - a fNIRS study.
Afternoon Tea		2:42pm – 3:15pm

DAY 3: WEDNESDAY 28 NOVEMBER 2018 (Cont.)

Session 4:	Time	PAIN & FATIGUE - 3.15pm-5:00pm
Chairs: Andrew Cresswell & Siobhan Schabrun	3:15	KAREN SØGAARD Muscle pain, fatigue and performance in motor impairments
	3:45	JANET TAYLOR Muscle fatigue and training: roles for the spinal cord (draft title)
	4:00	CHRIS MCNEIL Peripheral fatigue in young and old females and males
	4:15	SIOBHAN SCHABRUN Motor function and motor cortical reorganization in the transition to sustained pain
	4:30	PAUL HODGES Physical activity reduces dysregulation of the inflammatory mediators in the multifidus muscle after spontaneous intervertebral disc degeneration in SPARC-null mice
	4:45	STEPHEN LORD Closing remarks
End of day 3		5:00pm

CONFERENCE CONCLUDES

POSTER PRESENTATIONS MONDAY 26 NOVEMBER 1:30PM – 3.00PM	
P01	EDEN DELAHUNTY Cold-water immersion of a single limb increases motor cortex excitability for the opposite limb
P02	CHRISTOPHER LATELLA Group III/IV muscle afferent feedback does not modulate intracortical excitability and inhibition following fatiguing exercise
P03	SIOBHAN DONGÉS Paired corticospinal-motoneuronal stimulation does not improve maximal voluntary elbow flexion in people with incomplete cervical spinal cord injury
P04	ASHLEE HENDY Investigating the effects of muscle contraction and conditioning stimulus-intensity on short-interval intracortical inhibition
P05	CASSANDRA RUSSELL Effects of postural challenge on responses to cortical stimulation: a potential probe of extrapyramidal tract function?
P06	SIMON SUMMERS The relationship between motor cortex organisation and motor variability in the transition to sustained muscle pain
P07	VIDA ALIZAD Timed Up and Go task after applying anodal-transcranial Direct Current Stimulation (tDCS) in people with Parkinson's disease? Preliminary results
P08	ELEFThERIA GIANNOULI Guidelines for the design of stepping interventions for falls prevention
P09	YOSHIRO OKUBO Motor learning processes in responding to increasingly unpredictable trips and slips in older adults
P10	MATTHEW BRODIE Using Smart Socks and Rhythmic Haptic Cues to Stimulate the Foot Arch May Reduce Gait Variability During a Freezing of Gait Elicitation Task
P11	GARETH JONES Estimates of gait initiation-onset in both stroke and healthy individuals during the sit-to-walk task
P12	JASMINE MENANT Balance in dizzy middle-aged and older people reporting unsteadiness: is it all in the head?
P13	MEG LETTON The validity of inertial measurement units (IMU) in three-dimensional lower-body human gait analysis
P14	RACHEL KENNEDY Can retrospective report of falls provide an accurate snapshot of falling compared to prospective reporting in children and adolescents with Charcot-Marie-Tooth disease?
P15	LUKE PERRATON Quadriceps rate of force development following total knee replacement is associated with gait speed – low-cost clinically feasible methodology
P16	ARKIEV D'SOUZA Measurement of intramuscular fat in the medial gastrocnemius of stroke patients

P17	JUNYA EGUCHI The topography of hypertrophy: how muscle architecture changes with strength training
P18	KYLIE TUCKER Assessment of individual muscle mechanical properties: a systematic review
P19	JAMES NUZZO Reliability of tests of muscle strength and voluntary activation: a narrative review
P20	JACOB THORSTENSEN Antagonism of the D2 dopamine receptor reduces voluntary muscle activation and enhances central fatigue in humans
P21	GABRIEL TRAJANO The effect of moderate-duration passive muscle stretching on persistent inward currents estimated through paired motor unit analysis
P22	JOANNA DIONG Involuntary hamstring muscle activity reduces passive hip range of motion during the straight leg raise test
P23	MARTIN HÉROUX Poor statistical reporting, inadequate data presentation and spin persist despite editorial advice
P24	STEPHEN BESTED Mixing robotic guidance and unassisted practice for the learning of a sequential movement
P25	PHU HOANG Safety and Feasibility of an Eccentric Exercise Intervention in People with Multiple Sclerosis with ankle contractures – A Case Series of five subjects
P26	MICHAEL PSARAKIS Wearable technology reveals gait compensations, unstable walking patterns and fatigue in people with Multiple Sclerosis
P27	ANNIE BUTLER Does the way we grasp objects affect how we perceive our hands?
P28	SERAJUL KHAN The role of otoliths in vestibulo-ocular reflex adaptation
P29	THOMAS KNELLWOLF Changes in centre of pressure are encoded by muscle spindles supplying intrinsic muscle of the foot in freely standing humans
P30	VAUGHAN MACEFIELD Disturbed proprioception at the knee but not the elbow in hereditary sensory & autonomic neuropathy type III
P31	HASSAN QURESHI The hands are immediately perceived closer to body midline in the absence of vision
P32	LEWIS INGRAM The upper limb physiological profile assessment (PPA): description and reliability
P33	CLAIRE BOSWELL-RUYS Respiratory muscle reflex control and dysphagia in incomplete tetraplegia
P34	EUAN MCCAUGHEY Optimal electrode position for Abdominal Functional Electrical Stimulation

P35	DANIEL MCKEOWN Severe acute hypoxia reduces motor unit firing rate during isometric contractions
P36	AMAL OSMAN The upper airway is most collapsible during expiration in obstructive sleep apnoea
P37	DAVID MORKOS Wearable devices reveal impaired respiratory and cardiovascular responses to clinical assessments and activities during daily life in people with chronic obstructive pulmonary disease.
P38	ITOPA AJAYI Hippocampal modulation of respiratory motor output
P39	DAINA STURNIEKS The effect of optic flow on standing balance in young and older people with low and high fall risk.



Subscribe to the Motor Impairment Blog

<https://motorimpairment.neura.edu.au/>

- The Motor Impairment Blog communicates the latest research findings on motor impairments with researchers, clinicians, and the lay public.
- Since the start of the blog in 2014, there have been over 100 blog posts, which have generated more than 55,000 views.
- We are now accepting external blog submissions. If you have published a paper within the last year, and would like to author a blog for Motor Impairment, please email us at miblog@neura.edu.au for your idea to be considered.