Symposium of the ISB Working Group in Motor Control

Motor Control in Biomechanics

Tuesday 25 July 2017 | 8:30 AM to 4:30 PM • Wednesday 26 July 2017 | 10:15 AM to 11:15 AM

2017 XXVI Congress of the International Society of Biomechanics

Brisbane Convention and Exhibition Center • CNR Merivale & Glenelg Streets, South Bank, Brisbane, Queensland (AUS)

Organizers: ISB Working Group in Motor Control • Dr. Paola Contessa (USA) • Dr. William Z. Rymer (USA)

Invited Speakers

Each invited talk will be followed by oral presentations. For the full schedule please visit biomech2017.com

Who Should Attend: Researchers and students with an interest in Biomechanics and Motor Control should attend. Participants will have the opportunity to discover the latest developments at the intersection of these two fields and discuss with experienced investigators.

Registration and Fee: Participation is free for all ISB attendees. Register at: biomech2017.com/registration.php

With the support of the De Luca Foundation, MA (USA): Established by Professor Carlo J. De Luca to recognize researchers in the field of Electromyography and Biomechanics with emphasis on Motor Control. The foundation provides an annual award, the Delsys Prize; and the Emerging Scientist Award administered by the International Society of Biomechanics.

With the support of ISB: An award of $ 500 is made available to students and researchers who submitted their work to the symposium.

Special Session | Wednesday, 26 July 2017 • 10:15 AM to 11:15 AM

Lifelong Contributions of Carlo De Luca to the Study of Human Movement: Motor Control Innovations

Opening: Prof. William Z. Rymer (USA)
Speakers: Dr. Serge Roy (Delsys Inc & Boston University, USA) and Dr. Roberto Merletti (Politecnico di Torino, Italy)
# Program

## Tuesday, 25 July

### Neuromuscular Disorders and Rehabilitation

**9:30 - 10:30 am**

**Neuromuscular Disorders and Rehabilitation**

**9:30 - 9:54 am**

*Opening Invited Talk* Quantifying rehabilitation efficacy in chronic stroke requires a multi-modal approach: combining biomechanics, neurophysiology and clinical measures

*Dr. Penelope A. McNulty* (Neuroscience Research Australia and University of New South Wales, Australia)

**9:54 - 10:06 am**

Knee muscle activation strategy in girls with generalized joint hypermobility

*Dr. Bente Rona Jensen*

**10:06 - 10:18 am**

Evaluation and monitoring of motor control of the lumbopelvic movement in patients with chronic nonspecific low back pain

*Dr. Sharon MH Tsang*

**10:18 - 10:30 am**

Motor cortex representation of deep neck flexor muscles differs between individuals with and without neck pain

*Ms. Edith Elgueta-Cancino*

### Musculoskeletal Biomechanics

**11:00 - 12:00 pm**

**Musculoskeletal Biomechanics**

**11:00 - 11:24 am**

*Opening Invited Talk* The potential influence of tendon compliance on sensory feedback from lower limb muscles

*Dr. Glen Lichtwark* (University of Queensland, Australia)

**11:24 - 11:36 am**

Influence of residual force enhancement and elongation of attached cross-bridges on the stretch-shortening cycle

*Dr. Atsuki Fukutani*

**11:36 - 11:48 am**

Differences between concentric and eccentric contraction on the activation of biceps, brachioradialis and triceps muscle

*Dr. Catherine Disselhorst-Klug*

### Balance and Gait

**2:00 - 3:00 pm**

**Balance and Gait**

**2:00 - 2:24 pm**

*Opening Invited Talk* Insights into freezing of gait from wearable sensors

*Dr. Martina Mancini* (Oregon Health and Science University, USA)
### Wednesday 26th July

#### Motor Training and Adaptation

**9:30 - 9:54 am**  
Opening Invited Talk  
Exposure to a unique visual stimulus with kinesthetic sensation results in synchronized reciprocally induced spontaneous muscular recruitment  
*Dr. Fuminari Kaneko* (Sapporo Medical University, Japan)

**9:54 - 10:06 am**  
New insights into using the emg power spectrum to assess firing patterns during muscle fatigue  
*Dr. Michael Asmussen*

**10:06 - 10:30 am**  
Confounding factors in the analysis of fatigue-induced motor unit firing adaptations  
*Dr. Paola Contessa*

**10:18 - 10:30 am**  
The effects of pain on motor learning outlasts the duration of the painful stimulus  
*Sauro Salomoni*

#### Special Session: Lifelong Contributions of Carlo De Luca to the Study of Human Movement: Motor Control Innovations

**4:00 - 4:12 pm**  
Opening  
*Dr. William Z. Rymer* (Shirley Ryan Ability Lab, USA)

**4:12 - 4:36 pm**  
Lifelong Contributions of Carlo De Luca to the Study of Human Movement: Motor Control Innovations  
*Dr. Serge Roy* (Delsys Inc. & Boston University, USA)

**4:36 - 5:00 pm**  
Lifelong contributions of Carlo De Luca to the study of human movement: a global perspective  
*Dr. Roberto Merletti* (Politecnico di Torino, Italy)