



Muscle Decline in Aging and Neuromuscular Disorders Mechanisms and Countermeasures

Terme Euganee, Padova (Italy), April 13 - 16, 2016

Hotel Augustus, Viale Stazione 150 - 35136 Montegrotto Terme (Padova), Italy & Villa dei Vescovi, Luvigliano di Torreglia (Padova), Italy
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Organizers: Ugo Carraro, Helmut Kern, Christiaan Leeuwenburgh, Werner Lindenthaler, Francesco Piccione, Carlo Reggiani, Marco Sandri



**Hotel Augustus, Terme Euganee (Padua), Italy
April 14 and 16, 2016**



**Villa dei Vescovi, Luvigliano (Padua), Italy
April 15, 2016**

WEDNESDAY April 13, 2016 - Hotel Augustus, Viale Stazione 150, Montegrotto Terme (Padova), Italy

- 17.30** **Exercise and FES in premature and late aging: Tutorial and get-together**, H Kern, U Carraro, Chairs
- 17.30** Functional Electrical Stimulation (FES) of aging muscle, **Helmut Kern**, Vienna, Austria
- 18.00** In-Bed Gym and FES: Fighting muscle weakness by take-home strategies, **Ugo Carraro**, et al., Venice, Italy

THURSDAY April 14, 2016 - Hotel Augustus, Viale Stazione 150, Montegrotto Terme (Padova), Italy

- 9.00** **Workshop "Circadian rhythms in skeletal muscle"**, Christiaan Leeuwenburgh, Stefano Schiaffino, Chairs
Introduction by Stefano Schiaffino, Padova, Italy
- 9.20** Circadian rhythms and the molecular clock in skeletal muscle, **Karyn A. Esser**, University of Florida, Gainesville, FL, US
- 10.00** Intrinsic and extrinsic control of circadian gene expression in skeletal muscle, **Kenneth A. Dyar**, München, Germany
- 10.40** **Workshop "Diaphragm, structure and function"** – C Leeuwenburgh and C Reggiani, Chairs
- 10.40** Bench to bedside research on critical illness myopathy (CIM) and ventilator induced diaphragm muscle dysfunction (VIDD): Underlying mechanisms and intervention strategies, **Lars Larsson**, Stockholm, Sweden
- 11.20** A finite element approach to diaphragm mechanics: multiscale modeling from fiber to whole muscle, **Lorenzo Marcucci**, Piero Pavan, Luana Toniolo, Lina Cancellara, Arturo Natali, Carlo Reggiani, Padova, Italy
- 11.40** Plasticity of mouse diaphragm: aging and response to endurance training, **Silvia Quartesan**, Lina Cancellara, Sara di Siena, Cinzia Calabrese, Fabio Naro, Carlo Reggiani, Padova, Italy
- 12.00** 7-day denervation-atrophy is absent in diaphragm of oldest rats, **Daniela Danieli**, et al., Padova, Italy
- 14.15** **Openings**, Marco Sandri, CIR-Myo, Head, Rosario Rizzuto, University of Padua, Rector, Italy
- 14.30** **Workshop "Neuromuscular adaptations to exercise and ES in aging"**, Lee Sweeney, Marco Sandri, Chairs
- 14.40** **CIR-Myo - Lecture 1: Autophagy and the control of neuromuscular junction**, Marco Sandri, Padova, Italy
- 15.30** Role of MuRF1 and autophagy for the maintenance of neuromuscular junction, **Rüdiger Rudolf**, Mannheim, Germany
- 16.00** CK2-dependent phosphorylation in skeletal muscle regulates neuromuscular junction stability and mitochondrial homeostasis, **Said Hashemolhosseini**, Erlangen, Germany
- 16.30** Spatial distribution of neuromuscular junction components. Pretzels are more complex than we have anticipated, **Tomasz Proszynski**, Warsaw, Poland
- 17.00** Mitochondrial Alarmins are key intercellular signals in the degeneration & regeneration of the Neuromuscular Junction, **Cesare Montecucco**, Padova, Italy
- 17.45** Introduction by Gerta Vrbova, London, UK
- 18.00** **CIR-Myo - Lecture 2 - Difference in muscular adaptation due to regular exercise or through electrical stimulation**
Christiaan Leeuwenburgh, University of Florida, Gainesville, FL, US
- 20.00** Dinner



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FRIDAY April 15, 2016

Muscle Meeting in Villa Veneta - Villa dei Vescovi, Luvigliano, Euganei Hills

08.30 **Courtesy Bus to Luvigliano di Torreglia, Euganei Hills (Padova)**

09.00 **Introduction by Carlo Reggiani, Padova, Italy**

09.10 **CIR-Myo – Lecture 3 - Therapeutic Targets for Muscular Dystrophy**, Lee Sweeney, Univ. of Florida, Gainesville, US

10.00 **“Mobility impairments in aging and myopathies - I”** Christiaan Leeuwenburgh, Ugo Carraro Chairs

10.00 Handling growth and glucose through muscle IGF-I, **Elizabeth Barton**, University of Florida, Gainesville, FL, US

10.30 Molecular determinants of triadic junction formation, **Enea Liguori**, V Sorrentino et al., Siena, Italy

10.50 Role of CASQ1 mutations in human skeletal muscle diseases, **Valeria Del Re**, V Sorrentino et al., Siena, Italy

11.10 Tat-MyoD fused proteins and myogenic fate of equine MSC, **Chiara Gomiero**, et al., Padova, Italy

11.30 Calcium Entry Units (CRUs): discovery of intracellular junctions that promote assembly of STIM1 and Orai1 in skeletal muscle, **Simona Boncompagni**, Chieti, Italy

12.00 **CIR-Myo - Lecture 4 – Deep Brain Stimulation in Parkinson and dystonia**, Angelo Antonini, Venice/Padova, Italy

13.00 **Lunch**

14.00 **CIR-Myo - Lecture 5 – Link between malignant hyperthermia (MH) and environmental heat stroke (EHS): just a medical hypothesis?** Feliciano Protasi, University of Chieti, Italy

14.40 **Workshop** **“Mobility in elderly”: Molecular approaches** – Helmut Kern, Antonio Musarò, Chairs

14.40 Insights into the oxidative stress-mediated sarcopenia and dismantlement of NMJ, **Antonio Musarò**, Rome, Italy

15.10 Muscle trophism and mitochondria dynamics in ageing human skeletal muscle trained with Electrical Stimulation, **Sandra Zampieri et al.**, Padova/Vienna

15.30 ERG1a K⁺ Channel Modulates NFκB Activity in Atrophying Skeletal Muscle, **Amber Pond**, Southern Illinois University, Carbondale, US

15.50 *In situ* analyses of human MHC and SR adaptations to aging and FES, **Simone Mosole et al.**, Padova, Italy

16.10 **“Mobility impairments in aging and myopathies- II”** Stefano Masiero, Francesco Piccione, Chairs

16.10 Power decay in elderly: Lessons from Master athletes, **Paolo Gava et al.**, Padova, Italy

16.30 Electrical Stimulation in neuromuscular impairments: educational reports, **Andrea Marcante et al.**, Venice, Italy

16.50 Gut inflammation and chronic low back pain, **Sergio Veneziani et al.**, Bergamo, Italy

17.10 Novel insights into skeletal muscle function by mechanomyography in health and disease, **Fabio Esposito**, Milan, Italy

17.30 **CIR-my - Lecture 6 – Muscle and bone assessed by Color CT, gait analysis and EMG**, Paolo Gargiulo, Reykjavik, Iceland

18.30 **Courtesy Return Bus to Hotel Augustus, Terme Euganee (Padova)**

20.00 **Dinner**



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SATURDAY April 16, 2016



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- 09.00 **CIR-Myo - Lecture 7 – The RISE Project: roots, outcomes, byproducts**, Helmut Kern, Vienna, Austria
- 09.40 **Workshop: Functional Rejuvenation in Aging**, Werner Lindenthaler, Winfried Mayr, Chairs
- 09.40 The effects of chronic electrical muscle stimulation (EMS) following nerve injury on time to reinnervation and appropriate reinnervation of muscular targets, **Mike P Willand**, et al., Toronto, Ontario, Canada, and more ...
- 10.10 Establishing a hypertrophy model in rats using ‘SpillOver’ stimulation to cause co-contraction, **Jonathan C. Jarvis**, et al., Liverpool/Vienna
- 10.40 Investigating Energy Efficiency for different Pulse shapes and electrode arrangements to activate motor neurones, **Martin Schmoll**, Jonathan C. Jarvis
- 11.00 coffee break
- 11.20 MiniVStim18B: A highly configurable battery powered FES implant for long-term implantation in small animals, **Manfred Bijak**, Ewald Unger, Michael Haller, Martin Schmoll, Jonathan C. Jarvis, Hermann Lanmuller, Vienna/Liverpool
- 11.40 Chronic electrical stimulation in rodents: Results of a feasibility study, **Michael Karbinger**, Graz
- 12:10 Chronic neurostimulation for treatment of age related laryngeal muscular atrophy, **Markus Gugatschka**, Graz, Austria
- 13.00 Lunch
- 14.00 **Workshop: ES in Neuromuscular Disorders**, Jonathan C. Jarvis, Feliciano Protasi, Chairs
- 14.00 Method for selective surface stimulation of denervated muscles in the larynx, **Berit Schneider-Stickler**, Matthias Leonhard, Lukas Kneisz, Winfried Mayr, Vienna/Innsbruck
- 14.30 Determining optimal settings for selective surface stimulation in order to recruit paralyzed facial muscles under non painful conditions, **Gerd Fabian Volk**, Orlando Guntinas-Lichius, Tobias Schmid, ENT Jena; Lukas Kneisz, Matthias Ladurner, MEDEL Innsbruck; Winfried Mayr, Vienna, Austria
- 15:00 Round Table on ES-induced muscle damage, Discussant: Jonathan C. Jarvis, Winfried Mayr, Ugo Carraro, Justin Perkins
- 15.30 coffee break
- 16:00 **Vagus stimulation and other ES managements** Jonathan C. Jarvis, Francesco Piccione, Chairs
- 16:00 Percutaneous Auricular Vagus Nerve Stimulation, **Eugenijus Kaniasas**, Stefan Kampusch, Jozsef Constantin Széles, Vienna, Austria
- 16.30 “Noisy” electrical stimulation patterns facilitate the activity of cultured muscle cells, **Marina Sciancalepore**, et al., Trieste, Italy
- 17.00 Evaluation of tSCS treatment for the alleviation of lower limb spasticity, **Thordur Helgason** et al., Reykjavik, Iceland
- 17.20 Quantifying muscle degeneration from nonlinear trimodal regression analysis of radiodensitometric CT distributions, **Kyle J. Edmunds** et al., Reykjavik, Iceland
- 17.40 **Biomarkers in aging and neuromuscular disorders**, S Masiero, U Carraro, Chairs
- 17.40 Intracellular Ca²⁺ decoders as biomarkers of skeletal muscle plasticity in neurorehabilitation, **Alessandra Nori** et al., Padova, Italy
- 18.10 Biomarkers of bone, muscle and PNS plasticity for neurorehabilitation, **Barbara Zavan** et al., Padova, Italy
- 18.40 **Conclusive Remarks**, Winfried Mayr, Vienna Austria
- 19.00 U. Carraro - Arrivederci, Auf Wiedersehen, See You to 2017 PaduaMuscleDays 20.00 Dinner