

2019Spring PaduaMuscleDays: Translational Myology and Mobility Medicine

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Abstract

A half-century tradition of skeletal muscles studies, started with a research on fever, is continuing under the auspices of the Interdepartmental Research Centre of Myology (CIR-Myo), Department of Biomedical Sciences, University of Padova, Italy, the A&C M-C Foundation for Translational Myology, Padova, Italy and the European Journal of Translational Myology (EJTM). This year an EJTM Special will be dedicated to Muscle Fascia, an under looked topic, which merits more attention. Furthermore, this year the 2019SpringPaduaMuscleDays: Translational Myology and Mobility Medicine, an International Conference, was held March 28-30, 2019 in Euganei Hills and Padova (Italy). The abstracts of the 2019SpPMD, that are reported in the Myology News of EJTM 29 (1), 2019, are excellent examples of translational research. Their excellent contents are at the level needed for approval by Ethical Committees, International Granting Agencies, and Editors of international journals, thanks to the high scientific profiles of researchers and clinicians who are eager to present their results at the PaduaMuscleDays.

Key Words: PaduaMuscleDays, Translational Myology and Mobility Medicine

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Myologists working in Padua (Italy) were able to continue a tradition of skeletal muscle studies started half century ago with a research project whose aim was to explain if skeletal muscle is responsible of fever by burning bacterial toxins.¹ This concept sounds strange, but recent results on effects of myokines may attract new researchers.² Part of that tradition developed in the institution of the Interdepartmental Research Center of Myology of the University of Padova (CIR-Myo), in the organization of the PaduaMuscleDays (PMD), a series of International Conferences organized in Euganei Hills (Padova), Italy and in the publication of Basic and Applied Myology (BAM) (retitled from 2010 European Journal of Translational Myology - EJTM). This year an Eajtm Special Edited by Carla Stecco and Raffaele De Caro will be dedicated to Muscle Fascia, an under looked topic that merits more attention. For many years the fasciae have been considered by anatomists only as a “white envelope for the muscles”, that is generally removed in anatomical tables, to recognize muscle nerves and vessels. This is one of the reasons that different descriptions of the fasciae exist. On the other hand, in the last years the fasciae and their properties are becoming of

central importance to clinicians practicing in various conventional and alternative therapies. The results from the worldwide research activities constitute a body of significant and important data, but this clinical interest is not supported by in-depth comprehension to how integrate the new knowledge about fasciae with the classical biomechanical models based on muscles, tendons and bones. To close this gap an Eajtm Special on “Muscle Fascia” will be published September 30, 2019. The aim of the “2019 Eajtm Special on Muscle Fascia” is to point attention to several open questions: Do fasciae have a role in pain perception? How fasciae and muscles interact during movement? Have the fascia a role in posture? How do the various fasciae appear under ultrasound, MRI, and CAT scans? Could these instruments help us to understand the structure of the fasciae in living people? What is the role of the extracellular matrix, and in particular of the hyaluronic acid component? What is the percentage of elastic fibres within fasciae? Are there regional variations? Are fasciae innervated, playing a role in proprioception? Have they the capacity to actively contract? Do fasciae have a role in motor coordination?³⁻²³ Answers to these questions

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A&M-C Foundation for
Translational Myology

2019Spring PaduaMuscleDays, March 28 – 30, Montegrotto and Padova, Italy

Translational Myology and Mobility Medicine

Euganei Hills, Padova (Italy), March 28 - 30, 2019

Hotel Augustus, Montegrotto, Euganei Hills (Padova), Italy & University of Padova Botanical Garden, Padova, Italy

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Organizers: Ugo Carrara, Helmut Kern, Jonathan C. Jarvis, Viviana Moresi, Marco Narici, Feliciano Protasi, Marco Sandri





THURSDAY March 28, 2019 **Hotel Augustus, Montegrotto, Euganei Hills, (Padova), Italy**

10.00 SESSION I: Spinal Cord Neuromodulation and hbFES in SCI, Kern H, Carraro U, Chairs

10.00 Epidural Stimulation for the restoration of function following motor complete spinal cord injury, Claudia A. Angeli, Kentucky Spinal Cord Injury Research Center Louisville, KY, US

14.00 SESSION II: Muscle epigenetics in aging and myopathies, Moresi V, Zampieri S, Chairs

14.00 Lifestyle-related muscle epigenetic memory: mechanisms and biomedical relevance, Viviana Moresi, Rome Sapienza University, Italy. Lecture: Lifestyle-related muscle epigenetic memory: mechanisms and biomedical relevance, Moresi V, Rome, Italy

16.30 Session III: Experimental approaches in animal models, Jarvis JC, Chair

16.30 The ERG1a K⁺ channel increases calpain activity in C2C12 myotubes and mouse skeletal muscle, Amber Pond, Southern Illinois University, IL, US

FRIDAY March 29, 2019 **Aula Emiciclo, Orto Botanico, Padova, Italy**

8.50 Three Physiology Lectures, Sandri M, Carraro U, Introduction

9.00 Clay Armstrong, Penn University, Philadelphia, Pa, USA

9.30 Lars Larson, Karolinska, Stockholm, Sweden

10.00 Carlo Reggiani, University of Padova, Italy

10.30 Session IV – Face and Voice Rejuvenation, Jarvis JC, Chair

15.00 Session V – Muscle Imaging, Protasi F, Narici M, Chairs

SATURDAY March 30, 2019 **Hotel Augustus, Montegrotto, Euganei Hills, (Padova), Italy**

9.00 Official Meeting of the EU Center of Active Aging (CAA) Helmut Kern, Dusan Hamar, Chairs

14.00 Early Rehabilitation after knee and hip replacement (Early Reha), Helmut Kern, Sascha Sajer, Chairs

16.45 Round Table on contributions of basic scientists to CAA and Early Reha, Kern H, Chair Antonio Musarò, Feliciano Protasi, Marco Sandri, Sandra Zampieri, Giovanna Albertin, Nejc Sarabon, Ugo Carraro

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Fig. 1. Leaflet of the 2019SpringPaduaMuscleDays

will add to the many tools of rehabilitation strategies, contributing to understanding the biomechanical behavior of the fasciae, of their role in myofascial pain syndromes and of the effectiveness of different therapies. This year the 2019Spring PaduaMuscleDays were once

again held in Euganei Hills and Padova March 28-30 under the sub title of Translational Myology and Mobility Medicine. The backbone of the 2019SpPMD program is presented in Figure 1. The cryptic subtitle (Translational Myology and Mobility Medicine), may have attracted not

only the core group of researchers that gathered year after year to Padova, but some new speakers that filled the sessions of the 3-day Program. As to the concept of Mobility Medicine, it is worth stressing that Mobility can be a Medicine, but also that in too many diseases there is impaired mobility that influence the patients' quality of life. The Thursday March 28, morning Session I (Spinal Cord Neuromodulation and hbFES in SCI, Kern H, Carraro U, Chairs) was opened by Claudia A. Angeli, Kentucky Spinal Cord Injury Research Center Louisville, KY, USA, who presented "Epidural Stimulation for the restoration of function following motor complete spinal cord injury", a new exciting development for thoracic-level SCI patients.²³ The Thursday March 28 afternoon Session II (Muscle epigenetics in aging and myopathies, Moresi V, Zampieri S, Chairs) saw Viviana Moresi as the first speaker, presenting "Lifestyle-related muscle epigenetic memory: mechanisms and biomedical relevance". The Thursday March 28 afternoon Session III (Experimental approaches in animal models, Jarvis JC and Mayr W, Chairs) was opened by the presentation "The ERG1a K⁺ channel increases calpain activity in C2C12 myotubes and mouse skeletal muscle" by Amber Pond, Southern Illinois University, IL, USA. On Friday March 29, 2019 the second 2019SpPMD was held in the *Aula Emiciclo*, of the *Orto Botanico*, of the Padova University. Three Physiology Lectures, introduced by Marco Sandri, by Clay Armstrong, Penn University, Philadelphia, Pa, USA, Lars Larson, Karolinska, Stockholm, Sweden and Carlo Reggiani, University of Padova, Italy opened the Morning sessions. Whatever the names of physiology sub-specialization these speakers represented, they showed that quantitative evaluations of dynamic events of contraction machineries (action potential, E-C coupling, contractile proteins and energy metabolism of muscle fibers) are prerequisites of solid results in Myology and Mobility Medicine. Then, followed the morning and afternoon Sessions of Friday, March 29, Session IV (Face and Voice Rejuvenation, Jarvis JC, Chair) and Session V (Muscle Imaging, Protasi F, Narici M, Chairs). The afternoon of Friday March 29, 2019 ended with the guided visit of the Historical Botanical Garden of the University of Padova. Founded in 1545 by the Venetian Republic, it is the world's oldest academic botanical garden that is still in its original location. The garden is known for its special collections and historical design. It was devoted to the growth of medicinal plants, that produced natural remedies, and to teach students to recognize genuine medicinal plants. An after-dinner Guided Visit to Posters ended this very long PaduaMuscleDay. Saturday March 30, 2019 the meeting was held once again in the Conference Hall of Hotel Augustus, Euganei Hills, (Padova), Italy. The morning session was dedicated to the Official Meeting of the EU Center of Active Aging (CAA), Helmut Kern, Dusan Hamar, Chairs, while the afternoon was dedicated to the Session: Early Rehabilitation after knee and hip replacement (Early Reha), Helmut Kern, Sascha Sajer,

Chairs. A Round Table on contributions of basic scientists to CAA and Early Reha, Kern H, Chair, with Antonio Musarò, Feliciano Protasi, Marco Sandri, Sandra Zampieri, Giovanna Albertin, Andrea Porzionato, Nejc Sarabon and Ugo Carraro, closed the 2019Spring PaduaMuscleDays. As for the past PaduaMuscleDays,⁴⁴ the abstracts of 2019SpPMD cover translational research involving physical, pharmacological and cellular strategies to maintain or recover structure and function of skeletal muscles, patients' mobility, to treat many medical diseases. The researches attained the high level needed to attract support by Granting Agencies and approval by Ethical Committees as well as by Editors of high impact journals. Many of the abstracts present, indeed, results mature to be translated into clinical applications.⁴⁵ This happened in the past,⁴⁶⁻⁴⁸ it will happen in the future.

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Conflict of Interest

The author declare to have none conflicts of interests.

Ethical Publication Statement

Author confirms that he have read the Journal's position on issues involved in ethical publication and affirms that this report is consistent with those guidelines.

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