

Myology in Sports Medicine

When our dear friend and colleague, Prof. Ugo Carraro, Editor in Chief of “Basic and Applied Myology”, offered us the chance to organize and publish a special issue dedicated to the subjects discussed at the XIX meeting of the National Association of Specialist in Sports Medicine at the University of Chieti, G. D’Annunzio, we had mixed emotions. We were happy, of course, to be given such an opportunity but also a bit apprehensive about being given the daunting task of organizing a special issue whose prevalent topics would cover practical applications more than theoretical or basic approaches by a journal that reaches the international community.

However, after observing the philosophy of this meeting, proudly defined as ‘unusual’ in the world of sports medicine, we have obtained a better understanding of the goals we should all strive for and that have been the basis of these meetings over the past 20 years. That is to dedicate ourselves to the task of bringing to light new and interesting, even controversial, ideas and/or innovative fields of research that, while not yet having immediate practical application, may suggest new working hypothesis and/or future therapeutic uses.

It is for this reason that, in past editions, topics, such as, the biomechanical computational analysis of movement, the functional alterations and damage that occur at the molecular level due to physical activity, the specific pathologies tied to the presence and distribution of doping in the sport’s world, as well as the associated ethical and legal problems tied to, etc. have been addressed.

The subject of the direction of future research, presented at the Meeting held in Chieti last June, was dedicated to the alluring therapeutic perspectives that are currently being developed around the possibility that the new growth and regulatory factors of muscle fibers and the use of satellite cells, which exhibit many of the same characteristics of stem cells in muscle, can supply a valid regenerative response in muscles stricken by degenerative diseases of various origin.

With the intention of making this fascinating field more explicit and understandable to those who are generally more familiar with the applicative aspects than with those a bit more speculative, a round table discussion was organized, with a contribution from the Neurigem project for the study of muscular pathology, in which Ugo Carraro, Giorgio Fanò, Antonio Musarò, Fulvio Marzatico and Carlo Reggiani participated as official speakers.

Starting from this, we asked the speakers of the Round Table and, taking advantage of the availability of the BAM Editor, other colleagues whom we felt to be particularly suited to discuss the peculiar aspects of this field (D. Baroni, S. Fulle, M.A. Gianberardino, L. Magaudo) to also contribute to this special BAM issue.

Those who have the good fortune to read the works in this special issue will find that the attempt to cover the topics within in a fundamental fashion will begin with two reviews of general aspects. The first of these gives a description of new genomic and post-genomic molecular methodologies which are useful, if not necessary, for any attempt to understand the activation pathway of muscle fibers (C. Reggiani), while the second presents a critical analyses of the available adult stem cell models (G. Fanò).

The more detailed papers start with a description of the ‘non-pathological causes’ (exercise and senescence) that are able to modify the structural relationships of skeletal muscle (L. Magaudo) as well as the biochemical-biomolecular constituents (F. Marzatico) and functional capacity (S. Fulle) tied to the determinants of oxidative stress. An original ‘in vivo’ method (M.A. Gianberardino) through which the mechanism of referred muscle pain, whose central components are, as of today, far from being defined may be studied concludes this first section, while the last contributions concern the peculiar aspects of muscular fibre differentiation and in particular the mechanisms that link activation of the muscle fiber through the IGF-1 system (A. Musarò), the non-canonical growth factors (D. Baroni) that are able to positively stimulate growth and differentiation of satellite cells in culture, and the regeneration capabilities of rectus abdominis after full-thickness muscle ablation (V. Vindigni) are presented.

In conclusion, the works that have been offered by the authors involved in this BAM special issue are not expected to become a reference point for new prospective therapies in muscle that are currently being developed: Growth factors and satellite cells, but simply as a brief pause for reflection and analysis of what may become in the near future the field of research most studied.

Prof. Giorgio Fanò

Istituto Interuniversitario di Miologia –
Università “G. d’Annunzio”
Via dei Vestini, 29 66013 Chieti, Italy
TEL: +39 0871-3554036
Email: fano@unich.it

Prof. Leonardo Vecchiet

Dipartimento di Medicina e Scienza dell’Invecchiamento
Università “G. d’Annunzio”
Via dei Vestini, 29 66013 Chieti, Italy
Tel: + 39 0871- 0871 551533
Email: vecchiet@unich.it