

# “CONTRIBUTIONS ON THE RESEARCH OF THE PHYSICAL EXERCISE – FROM SPORT PERFORMANCE TO KINETOTHERAPY OF CHRONIC DISSEASES”

(HABILITATION THESIS SUMMARY)

## 1. INTRODUCTION

The habilitation thesis was drafted based on the recommendations of the National Council for Attesting University Titles, Diplomas and Certificates (C.N.A.T.D.C.U.), respectively the legislation in force in this area. According to these regulations, the thesis is divided into three parts, where I presented the main results in the activity of scientific research, professional and academic research, after conferring the title of doctor, indicating personal evolution on the three areas of activity concerned, and the main directions of its development in the global context of significant scientific and current achievements of the field in which I operate.

**The first section** of the thesis begins with a synthetic summary of scientific, academic and professional activities of the postdoctoral period, followed by the description of the most important research topics of that period:

- research aimed at improving evaluation of contractile function and fatigue of skeletal muscle during physical maximal exertion extended until exhaustion, completed by obtaining an analysis software of primary data resulting from recording electromyographic surface and tensiomyographic registrations that can provide a summary of information, facilitating implementation and use of this method of evaluation in both competitive sports and other groups of subjects, including the case of those involved in programs of kinesiology and kinetoprophylaxy;

- research on the methods for testing anaerobic exercise capacity at high performance athletes in national and olympic teams with a comparative analysis of Wingate and Szőgy-Cherebețiu tests and the competitor training phenomenon;

- research on the effects that different types of physical exercises may have on subjects diagnosed with metabolic syndrome or clinical entities included in this diagnosis and monitoring possibilities aspect of the persons included in programs of physical therapy or kinetoprophylaxy of metabolic syndrome.

In **the second section** the main directions of development of professional, scientific and academic career are presented, which we founded based on the professional experience acquired over 25 years of direct involvement in sport performance activity as a specialist in sports medicine, the teaching activity of over 11 years in higher education, human resource managers in teams actively involved in scientific research, but also as vicepresident of the Romanian Society for Sports Medicine, respectively founder and editor in chief of Sports Medicine Magazine belonging to the same company.

**The last section** belongs to bibliographical references used in compiling the thesis.

## 2. SCIENTIFIC, PROFESSIONAL AND ACADEMIC ACHIEVEMENTS

### 2.1. Scientific achievements. General framework of scientific research

#### a. *Doctoral dissertation*

On the 5<sup>th</sup> of June 2005, I publicly presented my doctoral thesis entitled "Modern methods for assessing physical performance and muscle fatigue" within IOSUD – The University of Medicine and Pharmacy in Craiova, obtaining a PhD title in normal and pathological physiology (OMEC no. 5657 / 12.12.2005).

#### b. *Postdoctoral research activity*

During the postdoctoral period, of about 11 years, the research activity was conducted within "*The Centre for Study and Research on Human Motricity*" of the University of Craiova (founded by national competition, organized by the National Council of Scientific Research for Higher Education), and in partnership with the University of Medicine and Pharmacy in Craiova, namely, The National Institute of Sports Medicine in Bucharest. The research focused on several thematic areas: development of evaluation methods in sports and physical therapy, support and recovery in performance sports, kinetoprophylaxie and physical therapy of chronic diseases.

#### c. *Publication of books and articles*

The publishing postdoctoral activity materialized by the publication of 72 articles *in extenso* (6 articles in ISI Thomson quoted magazines with impact factor; 8 articles in the proceedings of some ISI Thomson indexed international conferences; over 50 articles in BDI indexed magazines) 5 books published as main author (2 books - co-author), 3 chapters in collective volumes. Dissemination of research activity results was, also, done through the intermediate of more than 60 scientific studies presented in recognized international and national scientific manifestations.

### 2.2. Professional accomplishments

#### a. *Member in research centres or institutes*

I am a founding member of the "Centre for Study and Research on Human Motricity", the University of Craiova, and chief of the "Functional Evaluation of Sport Performance Department". The centre was joined in the ERA AGE-ERA.NET consortium and the MedResin European consortium.

#### b. *Member in editorial boards of some scientific journals of recognized and indexed prestige by a recognized international database.*

I am the founder and chief editor of the magazine "Sports Medicine" (ISSN1841-0162), a member of the scientific committee and / or reviewer to publications "Journal of Sports Medicine and Physical Fitness, American Journal of Sports Science and Medicine, World Academy of Science, Engineering and Technology, Journal of Clinical Rehabilitative Tissue Engineering Research, Timisoara Physical Education and Rehabilitation Journal, Palestrica Milenium 3.

*a. Membership of some national and international professional and scientific societies*

I am the vicepresident of the Romanian Society of Sports Medicine and a member of the European Federation of Sports Medicine Societies, European College of Sport Sciences, International Federation of Sports Medicine.

*b. Participation within research projects - innovation - development*

The research activity was completed by participating within the implementation teams of the 7 research projects, won by international (1) or national (6) competition; in two projects, I had the quality of project manager / project responsible (2).

### **2.3. Academic achievements**

*a. Didactical activity*

I am a teacher since 2005, occupying by competition the positions of lecturer (2005-2007) and associate professor (2007-2014). During the postdoctoral period, I held courses and seminars or practical papers at the following disciplines: Physiology of Physical Exercise, Functional Assessment, Physical Therapy for Respiratory Diseases – bachelor studies, Ergophysiology in School Sports, Physiology of Physical Exercise, Support and Recovery in Effort, Physical Therapy for Ventilatory Dysfunctions, Motric Anthropology - master's degree.

*b. Participation in conferences, seminars, national and international symposia*

During the postdoctoral period, I participated in numerous international scientific conferences (FIMS Congress-2006, 2008, 2010, 2014; ECSS Congress-2006, 2008, EFSMA Congress-2009; International Congress on Prediabetes and the Metabolic Syndrome, 2009; CODY Congress, Prague, 2010, WASET Conference 2011 and so on and so forth).

I was the organizer of several international conferences (vice-president of the Balkan Congress of Sports Medicine, Bucharest, 2008; vice-president of the International Conference "Physical Exercises - A Complex and Modern Way to Promote Healthy Living" - Craiova, editions 2008, 2009, 2010, 2011) and organizer of all conferences organized by the Romanian Society for Sports Medicine during 2005-2016. Also, I was a member in scientific committees of several international conferences (WASET International Conference on Physical Therapy and Rehabilitation 2013-2016, Conference on Orthopaedics and Traumatology 2013-2014).

## **III. PLANS OF CAREER EVOLUTION AND DEVELOPMENT**

### **3.1. Evolution and development plans for professional career**

In the development process of my academic career, I considered the following specific objectives: obtaining a university professor teaching degree, improvement and diversification of teaching skills, expand knowledge in the field of teaching and developing some new areas of teaching competence.

## **2.2. Plans of evolution and development of scientific and academic career**

For the scientific and academic career plan, I propose to extend and deepen the objective of research conducted in the postdoctoral step by developing scientific research activities both at an individual level and at a collective research level, disseminating research results within the framework of some national and international prestige scientific conferences, publishing articles in professional journals with international visibility.

## **3.3. Directions of research / teaching / practical applications and probable modes of action for the implementation thereof**

The research directions that will be deepened in the future are: improving methods of evaluation of exercise capacity in performance sports, research on the phenomenon of muscle fatigue and adaptation of the human body to exercise, physical exercise using for prophylaxis and the treatment of diseases.

The action modes for the implementation of these objectives will mainly consist of: permanent journalistic activity, holding lectures at national and international scientific manifestations, integration within the framework of national and international research networks in the field of physiology of exercise, physical therapy and kinetoprohylaxie, encouraging and coordinating the research activity for master and PhD students in order for them to obtain the necessary skills for independent research.