UNIVERSITY OF MEDICINE AND PHARMACY
BUCHAREST
DOCTORAL SCHOOL
FIELD OF MEDICINE

Research on modern ways to significantly improve rehabilitation outcomes in neuro-myo-arthro-kinetic pathologies

ABSTRACT OF THE ABILITATION THESIS

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2022

The abilitation thesis " Research on modern ways to significantly improve rehabilitation outcomes in neuro-myo-arthro-kinetic pathologies " illustrates the main results that I obtained in the scientific, academic, and professional activity in the specialized field of Physical Medicine and Rehabilitation (PMR), where I have been working for more than 20 years.

The first chapter of the thesis emphasis the scientific activity in the research field of neurorehabilitation by associating physio-kinesitherapy interventions specific to the patients with related conditions, resulting in research on rehabilitative interventions in neuro-myo-arthro-kinetic pathologies. Thus, all five research projects in which I have been involved are aimed at the management and assistance of people with disabilities due to neuro-myo-arthro-kinetic conditions, concerning also biotechnology and biological interventions.

The results of the scientific and research activity have materialized in two specialized books currently in their second edition: Electrotherapy practical principles, University Publishing House, Bucharest, 2022 and Local exam in rehabilitation, University Publishing House, Bucharest, 2022. I am also co-author in 6 other specialty books.

I am the author of 36 Web of Science (WOS) indexed articles, including main author of 24 ISI-listed articles and co-author in 13. H-index is 7 and the number of WOS citations is 219.

I have 3 invention patents registered at the State Office for Inventions and Trademarks (OSIM): Invention Patent, No. 122177 "Long orthotic device, with manually or electronically unassisted locking/unlocking system, of the mechanical joints related to the knee", Utility Model No. 0006 "National IT portal dedicated to patients with suffering after spinal cord injury" and Utility Model No. 00063 "Evaluation of micturition control disorders in the neurogenic bladder after spinal cord injury ".

I have obtained 2 international awards (I, 2013 and III respectively in 2016) and 3 national awards (I, II, III in 2021) within RMFB profile conferences. Also in 2021, I obtained the EU FISCDI 2021 award from the Ministry of Education within the research program of the Executive Unit for the Financing of Higher Education, Research, Development and Innovation for an article " Radial Extracorporeal Shockwave Therapy versus Ultrasound Therapy in adult patients with idiopathic scoliosis”.

From the academic point of view, I have supported the development of the PMR Discipline of SCUBA since its beginnings, actively contributing to the structure of the didactic

material panel for practical and theoretical courses, developing books and coordinating undergraduate work with students, elements described in detail in the chapter 2 of the thesis.

The third chapter presents the professional activity, starting with the graduation of the two faculties within the University of Medicine and Pharmacy "Carol Davila", the Medicine and Physio-kinesitherapy, obtaining the title of junior physician, later senior physician in the specialty of PMR, obtaining the postgraduate diploma with thesis: ”Research regarding significant recovering after modern therapy rehabilitation in post nevraxial lesions” and the two professional competencies in the field: electromyography and management of health services.

Regarding membership of professional academic structures, I am a founding member and vice-president of two specialized professional academic societies, namely: the Romanian Spinal Cord Society, RoSCoS, affiliated to the International Spinal Cord Society (ISCoS) and the Romanian Society of Neurorehabilitation (RoSNeRa), affiliated with the World Federation for Neurorehabilitation (WFNR), member of two other international and one national societies. I organized as a member of the scientific organizing committee a world congress and 6 other national congresses with international participation - as vice-president, member of the scientific committee or organizing committee. In the course of time, I have participated as a member in numerous examination commissions for obtaining the title of junior physician in PMR, senior physician in PRM, postgraduate admissions commissions, job competition commissions for physicians or kinesitherapists.

Considering the didactic dimension doubled by competence in the field - through specific medical activity at the patient's bedside, to which the research activity also joins, all harmoniously combined with the goal of developing the academic scale, I focus my development proposal on chapter 4 of the abilitation thesis on the following coordinates/directions:

- Developing and promoting the concept of neurorehabilitation - including research on neuroprotection and neuroplasticity
- Promoting physiotherapy as an integral part of rehabilitation programs in neuro-myo-arthro-kinetic pathologies - by revealing its new values and increasing understanding and openness at the international level to this extremely promising field

- Development of electromyography research in the field of neuro-myo-arthro-kinetic pathology

– Research in the field of nanotechnologies and robotic medical devices with an assistive role in neuro-myo-arthro-kinetic pathologies

– Supporting research in the field of balneology - by analyzing the natural therapeutic physical factor and objectifying its physical, chemical, and biological valences in order to establish objective indications, contraindications and therapeutic protocols for the treatment of neuro-myo-arthro-kinetic pathologies, including neuraxial ones

– The development of kinesitherapy by creating standardized kinetic therapy programs, based on objectives and described by specific means, supported by research in the field, integrating orthotic, robotic assistive devices in order to update this important domain.