



**Universitatea
Transilvania
din Brașov**

Facultatea de Medicină

**Departamentul Discipline Fundamentale,
Profilactice și Clinice**

HABILITATION THESIS

Title:

**MULTIDISCIPLINARITY IN PHYSICAL MEDICINE AND REHABILITATION –
FROM CLINICAL MEDICINE TO RESEARCH AND EDUCATION**

Domain: MEDICINE

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Abstract

The habilitation thesis "**Multidisciplinary in Physical Medicine and Rehabilitation - from clinical medicine to research and education**" brings together and combines the main aspects of academic, professional and research training that marked my training as a specialist physician and teacher during 20 years. After a brief synthesis of the professional development in Physical Medicine and Rehabilitation and of the scientific and academic path, the thesis details the main research topics from the almost 20 years of university career, in parallel with the professional development as primary doctor of rehabilitation medicine.

Chapter I, Scientific achievements (research and publications) start from the multidisciplinary and complexity in Physical Medicine and Rehabilitation and then marks the early years and stages of the research career during 20 years of teaching and research. The focus goes on three main areas of interest in research and scientific publications:

1. ***Innovation and Technology in Physical Medicine and Rehabilitation*** ((includes research and published work on virtual reality applied in post-stroke rehabilitation, a field very open to research and innovation, and research developed in a multidisciplinary team on the characteristics of bio-polymeric products, composites for orthopaedic use, materials used in prosthetics and biomaterials used in 3D printing for orthoses and prostheses, respectively in the printing of sanitary materials used in the COVID 19 pandemic, suitable for sterilization or multiple disinfection).
1. ***Cross-disciplinary rehabilitation research*** ((includes published research in the field of assessment and rehabilitation of stroke patients; research in pediatric rehabilitation of scoliosis and pectus excavatus, focusing on evaluation and respiratory and locomotor rehabilitation programs in children, interdisciplinary studies on osteoporosis in postmenopausal women and one psychiatric drug and a study on public health and risk management implementation).
1. ***Education and Ethics in Physiotherapy and Medical Rehabilitation*** (detailes the research stages in medical ethics and medical or non-medical education, culminating with the Covid 19 pandemic period, when new challenges and asymmetries in education and medical approach occur, an approach of physiotherapy and medical rehabilitation, medical or non-medical education, management and ethics in rehabilitation and balneoclimatology, respectively ethical issues in post-traumatic rehabilitation).

Chapter II, Academic achievements, points out the academic and didactic path from junior assistant to associate professor in 20 years of academic activity and research culminating with

the coordination of the residency training programme in Physical Medicine and Rehabilitation and the coordination of the Physiotherapy licence study program in the Brasov university centre.

Chapter III, Professional activity, shortly describes the professional development from resident physician to primary care physician with professional specializations and particularities. Managerial experience accumulated over the years leads to the present position as *head of department of "Clinical Department of Neuropsychomotric Rehabilitation"* in "Clinical Hospital of Psychiatry and Neurology", Brasov, as a coordinator teacher in the Brasov university training centre for resident doctors in the Physical medicine and rehabilitation specialty, as a *coordinator of Physiotherapy Study Programme* in Faculty of Medicine Brasov (since 2011).

Chapter IV scores the *future evolution and development plans for academic and research career development, future perspectives in clinical rehabilitation research* starting from the research fields approached so far and in which I have published scientific papers and from the international trends and perspectives of research in the field of physical medicine and rehabilitation. Two major directions of development and research are outlined schematically then the themes and purposes of each direction are explained:

1. **Neurorehabilitation plans and perspectives** (1.1. Standardized Neurorehabilitation Assessment, 1.2. Post Stroke Virtual Reality Technologies, Robotic Rehabilitation,
2. **Multidisciplinary/ interdisciplinary Rehabilitation and Research** (2.1. Respiratory rehabilitation post stroke; Post SARSCOV-2 infection rehabilitation of patients with neurological diseases or other associated pathologies; 2.2. Interdisciplinary pain management and Chronic pain management in rehabilitation programs; 2.3. Geriatric rehabilitation; 2.4. Rehabilitation of neurogenic bladder (post Stroke, Multiple sclerosis, Amyotrophic Lateral Sclerosis); 2.5. Spasticity management in Rehabilitation).

Also, some future projects are planned to combine education with research: 1. Health care continuity through interdisciplinary intervention focused on the person. Looking for the best model of comprehensive management of health care services and Health Care Assurance; 2. Home physiotherapy training for post-stroke patients; 3. Caregivers' and patient's education in post-stroke rehabilitation - framework for functional improvement and quality of life; 4. Low back pain as common condition and professional disease - Assessment, prophylaxis and therapeutic rehabilitation in students, nurses and caring staff in medical facilities (lifting habits and load burden); 5. Posture and static assessment and prophylaxis (for all medical categories exposed to disc herniation and bad posture: doctors, nurses, care staff, students).

Each of these research directions and project proposals can constitute extensive research topics as well as the offer of doctoral topics for future doctoral students.