

SPECIAL TOPICS IN PHYSIOTHERAPY AND REHABILITATION

Edited by

Prof. Dr. Hülya Harutođlu
Assoc. Prof. Dr. Gözde İyigün
Assoc. Prof. Dr. Ender Angın
Dr. Ayfer Kahraman

Redactor by

Dr. Gizdem Akdur
PhD(c) Görkem Akdur

© 2023 SPECIAL TOPICS IN PHYSIOTHERAPY AND REHABILITATION

ISBN: 978-625-7399-88-3

All rights reserved. Pursuant to Law No. 5846 and 2936 on Intellectual and Artistic Works; the printing, publishing and sales rights of this book belong to Hippocrates Publishing House /Hipokrat Yayınevi. All or parts of the book may not be reproduced, printed or distributed by mechanical, electronic, photocopying, magnetic paper and/or other methods without the permission of the said institution. Tables, figures and graphics cannot be used for commercial purposes without permission. The responsibility of the pictures and information used in the sections belongs to the author(s) of that section.

Edited by

Prof. Dr. Hülya Harutođlu
Assoc. Prof. Dr. Gzde İyign
Assoc. Prof. Dr. Ender Angın
Dr. Ayfer Kahraman

Redactor by

Dr. Gizdem Akdur
PhD(c) Grkem Akdur

Publisher

Hippocrates Publishing House

Graphic Design

Hipokrat Graphic Design

Print - Volume

Vadi Grafik Tasarım ve Reklamcılık Ltd. Őti.
İvedik Org. San. 1420. Cad. No: 58/1 Yenimahalle/Ankara
Tel: 0312 395 85 71 • Sertifika No: 47479

Hipokrat
Yayıncılık

Sleyman Sırrı Cad. No:16/2 Sıhıye
Tel: +90(312) 433 03 05 - 15 Ankara/Trkiye
www.hipokratkitabevi.com

*To Mustafa Kemal ATATÜRK
2023, Ankara*

Foreword

v

Although, the history of the physiotherapy profession does not go back to very old years, it is a professional health speciality field that is accepted and developing all over the world. Since the early 19th century physiotherapy education developed rapidly. With the diversity of evidence-based physiotherapy practices, the definition and the working areas of physiotherapists have also expanded.

Due to the interest and demand for the physiotherapy profession, the number of universities providing physiotherapy and rehabilitation education is increasing rapidly in Turkey and the Turkish Republic of Northern Cyprus, as in many countries. As the number of physiotherapists and the variety of diseases increased, specialization in different fields of physiotherapy other than general physiotherapy became inevitable. Physiotherapists, who are an important element of the multidisciplinary teamwork approach, have the opportunity to work in almost every field of medicine. In the contemporary curriculum taught for students in Physiotherapy and Rehabilitation departments, the subjects of practice and expertise other than traditional physiotherapy approaches are included under the subject heading of “Special Topics in Physiotherapy and Rehabilitation”. However, there is a lack of basic and supplementary textbooks on these special topics. The main purpose of our book is to provide an English guide resource on the subject with up-to-date information, which is currently lacking in the field of physiotherapy literature in Turkey, for academics, physiotherapists, and physiotherapy students.

The author staff of the book “Special Topics in Physiotherapy and Rehabilitation” consists of academic colleagues from universities across Turkey and Turkish Republic of Northern Cyprus who are experts in their fields. I would like to express my gratitude to my esteemed academic friends, who accepted to be the chapter author of this book, despite their heavy workload, for their devoted work and contributions.

I would like to thank all the employees of the Hippocrates publishing house, especially Ali Çelik and Hüseyin Çağlıkasap, who worked devotedly and meticulously at every stage of the book, making efforts to print the book in a colourful, fast and perfect manner and to reach every corner of the country.

We have tried to create an up-to-date evidence-based resource for our students, colleagues and all related scientists by summarizing as much as possible a wide range of special topics related to Physiotherapy and Rehabilitation. I hope this book will be a reliable, helpful source of guidance.

With my love and regards,

Prof. Dr. Hülya Harutoğlu

About the Editors

vii

Prof. Dr. Hülya Harutoğlu

After her high school education in Turkish Republic of Northern Cyprus (TRNC), she received her Bachelor's degree from Hacettepe University, Physical Therapy and Rehabilitation School in 1984, Master's degree (MSc) from Istanbul University, Institute of Cardiology in 1988, and Doctorate (Ph.D.) degree from Istanbul University, Faculty of Medicine, Medical Ecology and Hydro-climatology Department in 1994. She received the titles of Assistant Professor in 2000, Associate Professor in 2003, and Professor in 2009, from Istanbul University.

She participated in the establishment of the Cardio-pulmonary Rehabilitation units of the Institute of Cardiology between 1985-1999, and in the establishment of Florence Nightingale Hospital between 1990-1993. Between 1999 and 2005, she worked as the Head of the Department and Deputy Director of the Istanbul University School of Physical Education and Sports.

She worked as the 'SPIKE' Coordinator and faculty member at the Eastern Mediterranean University, Department of General Education between 2005 and 2010.

Between 2010 and 2015, she served as the Founding Dean of the Eastern Mediterranean University Faculty of Health Sciences and the Founding Director of the School of Health Services. She established the first Physiotherapy and Rehabilitation Department in TRNC.

In 2015, she served as the Dean of the Faculty of Health Sciences, the deputy Rector, and the CEO of the University at the British University of Nicosia.

In 2016, she served as the Founding Rector of Ada Kent University and the Founding Dean of the Faculty of Health Sciences. She became the first founding rector as a physiotherapist.

She has more than 100 international and national scientific articles and many scientific activities. She edited 4 books titled Heat Light and Hydrotherapy, Cardiac Rehabilitation, Pulmonary Rehabilitation and Introduction to Physiotherapy and Rehabilitation.

She is a member of many professional associations and chair of non-governmental organizations. She is the Founding President of Cyprus Geriatrics Foundation (Founding President), International Istanbul Health Tourism and Education Association (UİSTED) 2019 - present, Founding President of International Cyprus Health Tourism and Education Association (UKSTED) (2020 - present).

She was elected as a member of the Higher Education Planning, Evaluation, Accreditation and Coordination Council (YÖDAK) by the TRNC Republic Assembly in 2017 and she still continues her duty.

Assoc. Prof. Dr. Gözde İyigün

She was born in Nicosia on September 20, 1983. In 2000, she graduated from the Türk Maarif College. In 2005, she received her bachelor's degree in Physical Therapy and Rehabilitation from Hacettepe University. In 2007, she was awarded a Master of Science degree after attending Sheffield Hallam University's Department of Physical Therapy, Faculty of Health and Wellbeing's Neurological Rehabilitation program. In 2012, she received her doctorate in Physiotherapy and Rehabilitation from Hacettepe University.

As an Assistant Professor at the Eastern Mediterranean University Faculty of Health Sciences, Department of Physiotherapy and Rehabilitation from 2013 to 2020, she contributed to her field of study. She received her Associate Professor title in 2020 and continues to work as an Associate Professor. She has been working as the English Department Coordinator for the Physiotherapy and Rehabilitation Department since 2017.

She has conducted numerous research in older people and people with various neurological disorders on balance, mobility, walking, dual-task activities, fear of falling, response time, and virtual reality. She is a member of the Turkish Physiotherapists Association, Neurological Physiotherapy Subgroup, Turkish Republic of Northern Cyprus Physiotherapists Association, and International Association of Physical Therapists working with Older People (IPTOP).

Assoc. Prof. Dr. Ender Angın

She was born in Nicosia on September 19, 1984. In 2001, she graduated from the Türk Maarif College. In 2005, she graduated from Başkent University, Department of Physical Therapy and Rehabilitation. She received her master's degree in Physiotherapy and Rehabilitation at Hacettepe University in 2007 and her doctorate in 2012.

Between 2005-2012, she worked as a physiotherapist at the Mehmet Reis Physical Therapy and Rehabilitation Centre affiliated with Cyprus Turkish Orthopaedic Disabled Association. In the same years, she established the Marmara Physiotherapy and Rehabilitation Centre and worked there as a physiotherapist. In 2012, she started to work as a full-time assistant professor at Eastern Mediterranean University, Faculty of Health Sciences, Physiotherapy and Rehabilitation Department. In 2020, she was awarded the title of Associate Professor in the Physiotherapy and Rehabilitation Department. She has published many national and international articles in the field of orthopaedic rehabilitation. She is a member of the Turkish Physiotherapists Association, TRNC Physiotherapists Association, and International Association of Physical Therapists working with Older People (IPTOP).

Dr. Ayfer Kahraman

Ayfer qualified from the Manchester University with a BSc (Hons) in Physiotherapy in 2005 and subsequently completed an MSc in Musculoskeletal Physiotherapy at Manchester Metropolitan University in 2007 and a PhD in Health Care Sciences and Neurology at Kingston University and St George's, the University of London in 2014. She has several professional affiliations. She is a registered member of the Health and Care Professions Council (HCPC) and the Chartered Society of Physiotherapy (MCSP) in the United Kingdom. Ayfer has been a board member of non-governmental organizations in the UK and Europe, including the Anglo-Turkish Healthcare Professional Association (ATHPA) (Secretary-General); the European Federation of Turkish Healthcare Professionals (Vice-president) and the Council of Turkish Cypriot Associations (CTCA-UK)- (Public Relations Officer).

Ayfer has been a Senior Lecturer in Physiotherapy at London South Bank University, since 2019 within the Institute of Health and Social Care, contributing to the undergraduate (BSc) and postgraduate (MSc-pre-reg) Physiotherapy Programmes. She has previously taught on the Physiotherapy programmes at King's College London, Kingston University and the St George's University of London, as well as in the Medicine programme at St George's Hospital Medical School. She has previously worked as a Clinical Specialist Physiotherapist in Neuromuscular Diseases at the National Hospital for Neurology and Neuro-surgery. She was also Visiting Assistant Professor at the International Final University in North Cyprus in the 2018-2019 academic year.

Her research interests are focused on the management of long term conditions, physiotherapy education and mixed methodologies. She has experience in supervising dissertations and research projects. She has several international and national scientific publications and many scientific activities and awards.

About the Redactors

Dr. Gizdem Akdur, PhD, MSc, BEng (Hons)

Gizdem has been working as a research fellow at the Centre for Research in Public Health and Community Care (CRIPACC) - University of Hertfordshire since 2019. She currently works on the DACHA (Developing research resources and minimum data set for care homes' adoption and use) study, funded by the National Institute for Health Research (NIHR). Prior to that, she worked as a teaching fellow in the Department of Digital Humanities at King's College London for a year. Gizdem completed her MSc (2012) and PhD (2018) at the London School of Economics, under the Information Systems and Innovation Faculty Research Group, Department of Management. She was awarded her BEng (Hons) in Software Engineering from the University of Sheffield in 2010. Her research interests include health and social care information systems, technology in care, care home research, policy research, and ageing studies.

Görkem Akdur, PhD(c), MSc, MA, BSc (Hons)

Görkem has been working as a technical trainer at a multinational software company since September 2021 and as a teaching/research assistant at Kadir Has University since 2018. Prior, he worked as a senior lecturer at Cyprus International University. He has been researching health information technology context and published an SSCI paper on mobile health applications along with a few conference papers. Before that, he worked as a TUBITAK Ph.D. researcher for six months on a project related to geographic information systems. Gorkem completed his MSc (2018)-Engineering Business Management at the University of Warwick and his MA (2017)-Marketing Management at Eastern Mediterranean University. He was awarded his BSc (Hons) in Software Engineering from the University of Manchester in 2015. His research interests include health and human behaviors in information systems, technology, and organizational behavior.

Contributors

xi

Edited by

Hülya HARUTOĞLU, Prof., PhD, PT

Member of Higher Education Planning, Evaluation, Accreditation and Coordination Council,
Turkish Republic or Northern Cyprus (TRNC)

Gözde İYİĞÜN, Assoc. Prof., PhD, PT

Eastern Mediterranean University, Faculty of Health Sciences, Department of Physiotherapy and Rehabilitation,
Famagusta, Turkish Republic or Northern Cyprus (TRNC)

Ender ANGIN, Assoc. Prof., PhD, PT

Eastern Mediterranean University, Faculty of Health Sciences, Department of Physiotherapy and Rehabilitation,
Famagusta, Turkish Republic or Northern Cyprus (TRNC)

Ayfer KAHRAMAN, PhD, PT, MCSP, HCPC

Division of Physiotherapy, Sport Rehabilitation and Chiropractic, School of Allied and Community Health,
Institute of Health and Social Care, London South Bank University, London, United Kingdom

Contributors

Ali Cihan DAĞLI, MSc., PT

School of Healthcare Sciences,
Cardiff University, Cardiff, United Kingdom

Ayşe ABİT KOCAMAN, Asst. Prof., PhD, PT

Kırıkkale University, Faculty of Health Sciences,
Department of Physiotherapy and Rehabilitation,
Kırıkkale, Turkey

Ayşe Neriman NARİN, Asst. Prof., PhD, PT

Bolu Abant İzzet Baysal University, Faculty of Health
Sciences, Department of Physiotherapy and Rehabilitation,
Bolu, Turkey

Ayşe NUMANOĞLU AKBAŞ, Asst. Prof., PhD, PT

Sivas Cumhuriyet University, Faculty of Health Sciences,
Department of Physical Therapy and Rehabilitation
Sivas, Turkey

Aytül ÖZDİL, MSc., PT

Eastern Mediterranean University, Faculty of Health Sciences,
Department of Physiotherapy and Rehabilitation,
Famagusta, Turkish Republic or Northern Cyprus (TRNC)

Batuhan İ. DERİCİOĞLU, MSc., PT

Cyprus International University, Faculty of Health Sciences,
Department of Physiotherapy and Turkish Republic or
Northern Cyprus (TRNC) &
Physioart Physical Therapy, Rehabilitation and Health
Clinic, Pelvic Floor Physiotherapy Unit,
Turkish Republic or Northern Cyprus (TRNC)

Beliz Belgen KAYGISIZ, Assoc. Prof., PhD, PT

Lefke Avrupa Üniversitesi, Sağlık Bilimleri Fakültesi,
Fizyoterapi ve Rehabilitasyon Bölümü

Beraat ALPTUĞ, MSc., PT

European University of Lefke, Faculty of Health Science,
Department of Physiotherapy and Rehabilitation,
Turkish Republic or Northern Cyprus (TRNC)

Berkiye KIRMIZIGİL, Assoc. Prof., PhD, PT

Eastern Mediterranean University, Faculty of Health Sciences,
Department of Physiotherapy and Rehabilitation,
Famagusta, Turkish Republic or Northern Cyprus (TRNC)

Betül Fatma BİLGİN, MSc., PT

Eastern Mediterranean University, Faculty of Health Sciences,
Department of Physiotherapy and Rehabilitation,
Famagusta, Turkish Republic or Northern Cyprus (TRNC)

Betül YILDIRIM, MSc., PT

Siirt University, Vocational School Of Health Services,
Department of Physiotherapy, Siirt, Turkey

Beyza YAZGAN DAĞLI, MSc., PT

Gazi University, Faculty of Health Sciences, Department of
Physiotherapy and Rehabilitation, Ankara, Turkey

Bilge YEKTA DELLAL, MSc., PT

İzmir Democracy University, Faculty of Health Sciences,
Department of Physiotherapy and Rehabilitation
İzmir, Turkey

Buket AKINCI, Assoc. Prof., PhD, PT

Biruni University, Faculty of Health Sciences, Department of
Physiotherapy and Rehabilitation, İstanbul, Turkey

Büşra İNAL, MSc., PT

Bolu Abant İzzet Baysal University, Faculty of Health
Science, Department of Physiotherapy and Rehabilitation,
Bolu, Turkey

Ece ACAR, Asst. Prof., PhD, PT

Karabük University, Vocational School of Health Services,
Orthopedic Prosthesis Orthosis Program, Turkey

Ece MANİ, PhD. PT.

Eastern Mediterranean University, Faculty of Health Sciences,
Department of Physiotherapy and Rehabilitation,
Famagusta, Turkish Republic or Northern Cyprus (TRNC)

Elif DUYGU YILDIZ, PhD. PT.

Bolu Abant İzzet Baysal University, Faculty of Health
Sciences, Department of Physiotherapy and Rehabilitation,
Bolu, Turkey

Ender ANGIN, Assoc. Prof., PhD, PT

Eastern Mediterranean University, Faculty of Health Sciences,
Department of Physiotherapy and Rehabilitation,
Famagusta, Turkish Republic or Northern Cyprus (TRNC)

Esra PEHLİVAN, Assoc. Prof., PhD, PT

University of Health Sciences, Department of Physiotherapy
and Rehabilitation, Faculty of Hamidiye Health Sciences,
İstanbul, Turkey

Evrin KOÇARSLAN ŞAHİN, MSc., PT

2. Sensory Academy Ataşehir, İstanbul, Turkey

Eylem TÜTÜN YÜMİN, Assoc. Prof., PhD, PT

Bolu Abant İzzet Baysal University, Faculty of Health
Sciences, Department of Physiotherapy and Rehabilitation,
Bolu, Turkey

Fahriye ÇOBAN, MSc., PT

European University of Lefke, Faculty of Health Sciences,
Department of Physiotherapy and Rehabilitation,
Lefke, Turkish Republic or Northern Cyprus (TRNC)

Filiz Can, Prof., PhD, PT

Hacettepe University, Faculty of Physical Therapy and
Rehabilitation, Ankara, Turkey

Gamze EKİCİ, Prof., PhD, PT

Hacettepe University, Faculty of Health Sciences,
Ankara, Turkey

Gözde İYİGÜN, Assoc. Prof., PhD, PT

Eastern Mediterranean University, Faculty of Health Sciences,
Department of Physiotherapy and Rehabilitation,
Famagusta, Turkish Republic or Northern Cyprus (TRNC)

Gülay ARAS BAYRAM, Asst. Prof., PhD, PT

İstanbul Medipol University, Faculty of Health Sciences,
Department of Physiotherapy and Rehabilitation, İstanbul,
Turkey

Gülbin ERGİN, Assoc. Prof., PhD, PT

İzmir Bakırçay University, Faculty of Health Science,
Department of Physiotherapy and Rehabilitation
İzmir, Turkey

Gülhan YILMAZ GÖKMEN, Asst. Prof., PhD, PT

Bandırma Onyeddi Eylül University, Faculty of Health
Sciences, Department of Physiotherapy and Rehabilitation,
Turkey

Gülşah ÖZSOY, Asst. Prof., PhD, PT

Selçuk University, Faculty of Health Sciences, Department
of Physiotherapy and Rehabilitation, Konya, Turkey

Hanife ABAKAY, Asst. Prof., PhD, PT

Yozgat Bozok University, Sarıkaya School of Physiotherapy
and Rehabilitation, Yozgat, Turkey

Hanife DOĞAN, Asst. Prof., PhD, PT

Yozgat Bozok University, Sarıkaya School of Physiotherapy
and Rehabilitation, Yozgat, Turkey

Havva GÖZGEN, MSc., PT

Cyprus Science University, Faculty of Health Sciences,
Department of Physiotherapy and Rehabilitation,
Turkish Republic or Northern Cyprus (TRNC)

Hülya HARUTOĞLU, Prof., PhD, PT

Member of Higher Education Planning, Evaluation,
Accreditation and Coordination Council, Turkish Republic or
Northern Cyprus (TRNC)

İpek İKİZ, Asst. Prof., PhD, PT

European University of Lefke, Faculty of Health Sciences,
Department of Physiotherapy and Rehabilitation,
Lefke, Turkish Republic or Northern Cyprus (TRNC)

İsmail ÖZSOY, Asst. Prof., PhD, PT

Selçuk University, Faculty of Health Sciences, Department
of Physiotherapy and Rehabilitation, Konya, Turkey

**Jbid Dursun UNCU, Clinical Psychologist,
Neuropsychologist**

Acıbadem Maslak Hospital, Department of Neurosurgery,
İstanbul University, Institute of Health Sciences, Advanced
Neurological Sciences, İstanbul, Turkey

Kübra ÖZONAY, MSc., PT

Izmir Democracy University, Faculty of Health Sciences,
Department of Physiotherapy and Rehabilitation
Izmir, Turkey

Mahmut BEŞLİ, MSc., PT

Bolu Abant İzzet Baysal University, Faculty of Health
Sciences, Physiotherapy and Rehabilitation Department,
Bolu, Turkey

Mehmet SÖNMEZ, Asst. Prof., PhD, PT

Erzurum Technical University, Faculty of Health Sciences,
Department of Physiotherapy and Rehabilitation, Erzurum,
Turkey

Meral SERTEL, Assoc. Prof., PhD, PT

Kırıkkale University, Faculty of Health Sciences,
Department of Physiotherapy and Rehabilitation, Kırıkkale,
Turkey

Merve KOKU, PT

Izmir Democracy University, Faculty of Health Sciences,
Department of Physiotherapy and Rehabilitation,
İzmir, Turkey

**Nikos C. Apostolopoulos, PhD, PhD, MPhil, BPHE
(Sports Medicine)**

Adjunct Professor, Founder of Stretch Therapy &
MicroStretching
University of Toronto, Faculty of Kinesiology and
Physical Education, Toronto, Canada

Nuriye ÖZENGİN, Assoc. Prof., PhD, PT

Bolu Abant İzzet Baysal University, Faculty of Health
Sciences, Department of Physiotherapy and Rehabilitation,
Bolu, Turkey

Nursen İLÇİN, Assoc. Prof., PhD, PT

Dokuz Eylül University, Faculty of Physical Therapy and
Rehabilitation, Department of Geriatric Physiotherapy,
İzmir, Turkey

Özge Ece GÜNAYDIN, Asst. Prof., PhD, PT

Aydın Adnan Menderes University, Faculty of Health Sciences, Department of Physical Therapy and Rehabilitation, Aydın, Turkey

Özlem ÇINAR ÖZDEMİR, Assoc. Prof., PhD, PT

Izmir Democracy University, Faculty of Health Sciences, Department of Physiotherapy and Rehabilitation
Izmir, Turkey

Ramazan KURUL, Asst. Prof., PhD, PT

Bolu Abant İzzet Baysal University, Faculty of Health Sciences, Department of Physiotherapy and Rehabilitation,
Bolu, Turkey

Sabiha BEZGİN, Asst. Prof., PhD, PT

Hatay Mustafa Kemal University, Faculty of Health Sciences, Department of Physiotherapy and Rehabilitation,
Hatay, Turkey

Saniye AYDOĞAN ARSLAN, Assoc. Prof., PhD, PT

Kırıkkale University, Faculty of Health Sciences,
Department of Physiotherapy and Rehabilitation,
Kırıkkale, Turkey

Sebahat Yaprak ÇETİN, Asst. Prof., PhD, PT

Akdeniz University, Faculty of Health Sciences, Department of Physiotherapy and Rehabilitation, Antalya, Turkey

Seda KARAMAN, Asst. Prof., PhD, PT

Samsun Ondokuz Mayıs University, Faculty of Health Sciences, Department of Physiotherapy and Rehabilitation,
Samsun, Turkey

Sena ÖZDEMİR GÖRGÜ, Asst. Prof., PhD, PT

Istanbul Medipol University, School of Health Sciences,
Faculty of Orthotics and Prosthetics, Samsun, Turkey

Serpil ÇOLAK, Asst. Prof., PhD, PT

Bandırma Onyedi Eylül University, Vocational School of Health Services, Therapy and Rehabilitation,
Balıkesir, Turkey

Sevgi ÖZDİNÇ, Assoc. Prof., PhD, PT

Trakya University, Health Sciences Faculty, Physiotherapy and Rehabilitation Department, Turkey

Sevim ÖKSÜZ, Asst. Prof., PhD, PT

Eastern Mediterranean University, Faculty of Health Sciences,
Department of Physiotherapy and Rehabilitation,
Turkish Republic or Northern Cyprus (TRNC)

Şebnem AVCI, Assoc. Prof., PhD, PT

Bolu Abant İzzet Baysal University, Faculty of Health Sciences, Department of Physiotherapy and Rehabilitation,
Bolu, Turkey

Tezel YILDIRIM ŞAHAN, Asst. Prof., PhD, PT

Health Science University, Faculty of Gülhane Health Sciences, Department of Physiotherapy and Rehabilitation,
Ankara, Turkey

Tuğçe KALAYCIOĞLU, Asst. Prof., PhD, PT

Cyprus Health and Social Sciences University,
School of Health, Physical Therapy and Rehabilitation
Department, Turkish Republic or Northern Cyprus (TRNC)

Zehra GÜÇHAN TOPÇU, Asst. Prof., PhD, PT

Eastern Mediterranean University, Faculty of Health Sciences, Department of Physiotherapy and Rehabilitation,
Famagusta, Turkish Republic or Northern Cyprus (TRNC)

Contents

XV

Chapter 1

Exercise-Based Physiotherapy and Rehabilitation in Patients with Chronic Diseases

ESRA PEHLIVAN

Introduction	1
Exercise-Based Physiotherapy and Rehabilitation in Chronic Cardiopulmonary Diseases	3
Exercise-Based Physiotherapy and Rehabilitation in Chronic Musculoskeletal Diseases	6
Exercise Based Physiotherapy And Rehabilitation in Other Chronic Diseases	8

Chapter 2

Chronic Pain and Current Rehabilitation Approaches

GAMZE EKİCİ

Chronic Pain and Its Prevalence	13
Chronic Pain and Biopsychosocial Health Model	13
Pain Rehabilitation Team	13
Pain Rehabilitation	14
Holistic Assessment in Chronic Pain	15
Treatment in Chronic Pain	16
Approaches Used in the Treatment of Chronic Pain	16
Conclusion	20

Chapter 3

Physiotherapy in Headache

MERAL SERTEL • SABIHA BEZGİN

Introduction	21
Headache and the Classification of Headaches	21
Primary Headaches	22
Migraine	22
Secondary Headaches	26
Evaluation of Headaches	26
Treatment in Headaches	27
Conclusion	31

Chapter 4

Complex Regional Pain Syndrome

AYŞE NERİMAN NARİN • MAHMUT BEŞLİ

Description	33
Clinical Symptoms	34
Diagnosis.....	35
Phases of CRPS	35
Types of CRPS	36
Treatment	36

Chapter 5

Physiotherapy and Rehabilitation in COVID-19 Infection

ESRA PEHLİVAN • HÜLYA HARUTOĞLU

Introduction	41
COVID-19 Pathogenesis	41
How Does COVID-19 Transmit and Spread?	41
Diagnosis of COVID-19	42
Symptoms and Clinical Features of COVID-19	42
Risk Factors.....	42
Effects of COVID-19 Infection on Body Systems	43
COVID-19 Treatment Approaches	44
Acute Phase (Very Severe Respiratory Distress)	45
Acute Phase (Serious Health Status)	45
Post-Acute Phase (After Discharge).....	46
Long-term Health Consequences of COVID-19	46
Long-Term Physiotherapy Approaches	47

Chapter 6

Sensory Evaluation and Training After Peripheral Nerve Injuries

SEBAHAT YAPRAK ÇETİN

Introduction	51
Peripheral Nerve Anatomy.....	51
Classification of Peripheral Nerve Injuries	52
Etiology of Peripheral Nerve Injuries.....	53
Degeneration and Regeneration Stage in Peripheral Nerve Injuries.....	53
Changes After Peripheral Nerve Injury	54
Evaluation Methods	54

Chapter 7

Geriatric Rehabilitation

FİLİZ CAN • İPEK İKİZ

Aging and Definition.....	61
Main Causes of Aging	61
Definitions of Geriatrics, Gerontology, and Geriatric Rehabilitation	62
Physiological Changes Resulting From Aging.....	62
Geriatric Syndromes	65
Comprehensive Geriatric Assessment	67
Evaluation in Physiotherapy and Rehabilitation.....	68
Basic Principles of Geriatric Rehabilitation	70

Chapter 8

The Importance of Exercise for Older People

ŞEBNEM AVCI • MEHMET SÖNMEZ

Introduction	79
Musculoskeletal Changes with Aging	79
Some Terminological Concepts of Aging.....	80
Benefits of Exercise in Older People	82
Exercise Recommendations for the Old Age Period.....	83
Conclusion.....	84

Chapter 9

Cardiac Rehabilitation in Older Individuals

NURSEN İLÇİN • GÜLŞAH ÖZSOY • İSMAİL ÖZSOY

Overview of Aging and Cardiovascular System.....	87
Effects of Aging on the Cardiovascular System.....	87
Cardiac Rehabilitation	89
Limited Use of Cardiac Rehabilitation	93
Safety of Cardiac Rehabilitation Practices	93
Cardiac Rehabilitation Difficulties.....	93
Case Report.....	94

Chapter 10

Alzheimer's Disease and Rehabilitation

BELİZ BELGEN KAYGISIZ • FAHRİYE ÇOBAN • HAVVA GÖZGEN

Introduction	97
Epidemiology	97
Prognosis of the Disease.....	97
Neuropathology	97
Risk Factors.....	98

Early Signs of Alzheimer's Disease	99
Evaluation of Alzheimer's Disease	101
Treatment Approaches in Alzheimer's Disease.....	102
Physiotherapy and Rehabilitation in Alzheimer's Disease.....	103
Recommendations for Individuals with Alzheimer's Disease	105

Chapter 11

Physiotherapy and Rehabilitation in Palliative Care

GÜLBİN ERGİN • BERAAT ALPTUĞ

Introduction	107
Palliative Care.....	107
Physiotherapy and Rehabilitation in Palliative Care.....	107
Pain Management.....	110
Functional Mobility Reduction	111
Fatigue	111
Dyspnea	112
Mood Changes.....	113
The Role of Physical Activity and Exercise in Palliative Care	114
Conclusion.....	114
Key Points.....	115

Chapter 12

Cognitive Function Disorders: Evaluation and Physiotherapy

GÖZDE İYİGÜN • JBİD DURSUN UNCU • BETÜL FATMA BİLGİN • AYTÜL ÖZDİL

Cognitive Functions	117
Neuropsychological Assessment in Cognitive Function Disorders	122
Physiotherapy and Treatment Methods for Cognitive Function Impairments.....	125

Chapter 13

Physiotherapy and Rehabilitation in Osteoporosis

SEVİM ÖKSÜZ • ENDER ANGIN

Introduction	131
Definition of Osteoporosis	131
Diagnostic Criteria for Osteoporosis	131
Classification of Osteoporosis	132
Primary Osteoporosis.....	132
Osteoporosis in Men	133
Risk Factors for Osteoporosis.....	134
Pathophysiology of Osteoporosis.....	134
Clinical Manifestations of Osteoporosis	135
Assessment in Osteoporosis	137
Physiotherapy and Rehabilitation in Osteoporosis.....	139

Physiotherapy and Rehabilitation in Acute and Chronic Fractures	140
Patient Education	140
Physical Activity and Exercise	141

Chapter 14

Balance and Gait Training

SANIYE AYDOĞAN ARSLAN • TEZEL YILDIRIM ŞAHAN • SABIHA BEZGİN

Introduction	147
Balance	147
Gait	150
Gait Assessment	154
Gait and Balance Rehabilitation	154
Conclusion	158

Chapter 15

Physiotherapy and Rehabilitation in Mental Health

HANİFE DOĞAN

Introduction	161
Characteristics and Diagnosis of Psychiatric Diseases	161
Evaluation of Physical Symptoms in Psychiatric Diseases	162
Physiotherapy and Rehabilitation Approaches to Mental Health	164
Case Study	172
Conclusion	172

Chapter 16

Physiotherapy and Rehabilitation in Sleep Disorders

GAMZE EKİCİ

Introduction	175
Sleep and Health	175
Sleep Disorders	176
Treatment Approaches in Sleep Disorders	176
Physiotherapists' View on Sleep	177
Practical Information for Physiotherapists About Sleep	177
Conclusion	181

Chapter 17

Urinary Incontinence

ÖZLEM ÇINAR ÖZDEMİR • KÜBRA ÖZONAY

Introduction	183
Pelvic Floor	183

Lower Urinary System.....	185
Classification of Urinary Incontinence.....	186
Evaluation.....	187
Treatment Options	190

Chapter 18

Pelvic Floor Rehabilitation in Men

BATUHAN İ. DERİCİOĞLU

Introduction	197
Anatomy and Functions of the Pelvic Floor in Men.....	197
Pelvic Floor Dysfunctions in Men.....	199
Conclusion	207

Chapter 19

Renal Rehabilitation

SERPİL ÇOLAK

General Information	209
Renal Rehabilitation	213

Chapter 20

Diabetes Mellitus and Rehabilitation

BUKET AKINCI • EVRİM KOÇARSLAN ŞAHİN

Introduction	221
Physical Activity in Prediabetes	222
Physical Activity in Type 1 DM.....	222
Physical Activity in Type 2 Diabetes.....	224
Physical Activity in Gestational Diabetes.....	227
Conclusion	228

Chapter 21

Diabetic Foot

EYLEM TÜTÜN YÜMİN • ECE ACAR

Introduction	231
Risk Factors in Diabetic Foot Formation	231
Evaluation Methods in the Diabetic Foot.....	234
Treatment Methods in the Diabetic Foot.....	238

Chapter 22

Physiotherapy and Rehabilitation in Wound Healing

HANİFE ABAKAY

Introduction	245
Wound Healing	245
Wound Healing Types.....	247
Pressure Ulcers	247
Stages of Pressure Ulcer Development.....	249
Assessment of Pressure Ulcers.....	249
Special Scales Used in Chronic Wound Assessment	249
Treatment and Care of Pressure Ulcers	250
Wound Dressing	250
Wound Debridement	250
Wound Closure Methods	251
Electro Physical Agents Used in Treatment of Chronic Wound and Pressure Ulcer	252
Exercise Practices in the Treatment of Pressure Ulcers and Chronic Wounds.....	255
Prevention of Pressure Ulcers	256

Chapter 23

Physiotherapy in Chronic Venous Insufficiency (CVI)

ÖZLEM ÇINAR ÖZDEMİR • BİLGE YEKTA DELLAL • MERVE KOKU

Introduction	261
Venous System Anatomy.....	261
Pathophysiology.....	262
Epidemiology and Risk Factors	263
Clinical Indications and Symptoms.....	264
Treatment Approaches in CVI	266
Physiotherapy in CVI	266

Chapter 24

Lymphedema Physiotherapy and Rehabilitation

ÖZLEM ÇINAR ÖZDEMİR • SEDA KARAMAN

Introduction	273
Anatomy and Physiology of Lymphatic System.....	274
Functions of the Lymphatic System.....	276
Pathophysiology of Lymphatic System	276
Etiology and Risk Factors of Lymphedema	276
Risk Factors.....	277
Epidemiology of Lymphedema	278
Diagnosis and Evaluation of Lymphedema	278
Evaluation Methods of Lymphedema.....	279
Clinical Stages of Lymphedema	280
Treatment Approaches for Lymphedema	280

Non-operative (Conservative) Treatments.....	281
Physiotherapy and Rehabilitation in Lymphedema.....	281
Operative Treatment	286
Assessment and Follow-up of Treatment.....	286

Chapter 25

Instrument Assisted Soft Tissue Mobilization Techniques

ECE MANİ • BERKİYE KIRMIZIGİL

Development of Instrument Assisted Soft Tissue Mobilization (IASTM).....	289
Definition and Usage Advantages of IASTM	289
Classification of Designed Instruments.....	290
Effect Mechanism in IASTM Methods	291
Side Effects of the IASTM Method	292
Application Methods and Parameters of IASTM	292
Who Can Apply IASTM Techniques?.....	293

Chapter 26

microSTRETCHING® A Recovery and Regeneration Therapeutic Technique

NIKOS C. APOSTOLOPOULOS • TUĞÇE KALAYCIOĞLU

Introduction	295
The parameters of microSTRETCHING.....	296
Stability, Balance, and Control (SBC™) (Body Position).....	299
Samples of Self microSTRETCHING.....	299
Conclusion.....	300

Chapter 27

Oncological Physiotherapy and Rehabilitation

AYŞE NERİMAN NARİN • BEYZA YAZGAN DAĞLI • ALİ CİHAN DAĞLI

Introduction	303
Definition and Types of Cancer.....	303
Cancer Treatment Methods	304
Side Effects of Cancer Treatments.....	305
Assessment of Oncological Patients within the Framework of the International Classification of Functioning, Disability, and Health.....	306
Physiotherapy and Rehabilitation in Oncology	307
Oncological Physiotherapy and Rehabilitation Interventions.....	307
Results	312

Chapter 28

Physiotherapeutic Approaches to Hypertension

MERAL SERTEL • AYŞE ABİT KOCAMAN

Introduction	315
Definition of Hypertension	315
Classification	315
Classification of Hypertension According to Its Etiology	316
Epidemiology	317
Pathophysiology.....	317
Diagnosis.....	318
Clinical Findings in Hypertension.....	318
Treatment of Hypertension.....	319
Exercise Training in Hypertension.....	320
Conclusion.....	324

Chapter 29

Physiotherapy and Rehabilitation in Obesity

ZEHRA GÜÇHAN TOPÇU • HÜLYA HARUTOĞLU

Introduction	327
Causes of Obesity	329
Medical Diet Treatment	330
Exercise Treatment	330
Behavioral Methods and Cognitive Behavioral Therapies	333
Pharmacological Treatment.....	334
Surgical Treatment in Obesity	334
Methods Used in Obesity Surgery	334

Chapter 30

Physiotherapy and Rehabilitation in Childhood Obesity

ZEHRA GÜÇHAN TOPÇU • HÜLYA HARUTOĞLU

Introduction	337
Classification of Obesity and Childhood Obesity	337
Motor Skills in Obese Children	337
Development of Skeletal System and Problems Related to Posture in Obese Children	338
Physical Activity in Obese Children.....	339
Childhood Obesity and Physiotherapy.....	340

Chapter 31

Pregnancy and Physiotherapy

BETÜL YILDIRIM • ÖZLEM ÇINAR ÖZDEMİR

Introduction	345
Changes in the Respiratory System.....	345
Changes in the Cardiovascular System	345
Changes in the Urinary System	346

Changes in the Gastrointestinal System	346
Changes in the Hormonal System	346
Changes in the Musculoskeletal System	346
Complications Associated with Gestation	347
Pregnancy and Exercise	350
Antenatal (Prenatal) Physiotherapy	351
Conclusion	352

Chapter 32

Temporomandibular Joint Rehabilitation

SENA ÖZDEMİR GÖRGÜ

Introduction	355
Temporomandibular Joint Anatomy	355
Temporomandibular Joint Disorders	359
Conservative Management Approaches	362
Patient Education	362
Therapeutic Exercise	363
Manual Therapy	365
Electrotherapy	365
Splints	365
Conclusion	365

Chapter 33

Eye Exercises

GÜLAY ARAS BAYRAM

Introduction	369
Eye Anatomy	369
Bates Method	371
Chinese Eye Exercises	372
Yoga and Eye Exercises	373
Oculo-Motor Exercises	373
Orthopic Exercises	374
Conclusion	375

Chapter 34

Vestibular Rehabilitation

RAMAZAN KURUL

Introduction	377
Vestibular Pathologies	378
Evaluation	379
Treatment	380

Chapter 35**Core Stability****BİLGE YEKTA DELLAL • ÖZLEM ÇINAR ÖZDEMİR**

Introduction	387
Anatomy	387
Physiology and Biomechanics	390
Core Stabilization Assessment	391
Core Stabilization Exercises	392

Chapter 36**Virtual Reality Reflection Therapy****MEHMET SÖNMEZ • EYLEM TÜTÜN YÜMİN**

Introduction	397
What Is Virtual Reality Reflection Therapy?	398
Application Techniques of Virtual Reality Reflection Therapy	398
Application Time in Virtual Reality Reflection Therapy	400
Is Virtual Reality Reflection Therapy an Effective Practice?	401
Strong and Weak Aspects of Virtual Reality Reflection Therapy	402
Conclusion	403

Chapter 37**Assistive Technologies Used for Mobility Education in
Physiotherapy and Rehabilitation****ŞEBNEM AVCI • MEHMET SÖNMEZ**

Introduction	405
Body Weight-Supported Assistive Technologies	406
Robotic Gait Devices	410
Conclusion	411

Chapter 38**Dance and Movement Therapy****GAMZE EKİCİ**

Dance and Movement Therapy	415
Body Systems Used During Dance	415
Development of Dance and Movement Therapy	415
Main Parts in Integrative Dance and Movement Therapy	416
Biopsychosocial Effects of Dance and Movement Therapy	417
Goal-Oriented Dance and Movement Therapy Results in Individuals with Schizophrenia	417
Line Dancing	417
An Example and Results of Goal Oriented Line Dancing	418
Conclusion	419

Chapter 39

Yoga in Physiotherapy and Rehabilitation

ELİF DUYGU YILDIZ • NURİYE ÖZENGİN

Definition and History.....	421
Eight Limbs of Yoga	421
Yoga Styles	421
Basic Elements of Yoga Sessions	421
Physiological Effects of Yoga.....	427
Number and Duration of Sessions.....	430
Areas of Application and Effects.....	430

Chapter 40

Tai Chi Exercises in Physiotherapy and Rehabilitation

GÜLHAN YILMAZ GÖKMEN

Introduction	435
Practice Features of Tai Chi and Its Effects on General Health.....	436
Type and Intensity of Tai Chi.....	437
Tai Chi in Physiotherapy and Rehabilitation	438
Tai Chi in Neurological Rehabilitation	438
Tai Chi in Chronic Pain	441
Tai Chi for the Prevention of Falls in the Older People	442
Conclusion.....	442
Case Study	442

Chapter 41

Aquatic Therapy (Hydrotherapy)

AYŞE NUMANOĞLU AKBAŞ • ÖZGE ECE GÜNAYDIN

Introduction	445
Water-Related Properties	447
Aquatic Therapy Applications	449
Contraindications and Precautions for Aquatic Therapy	451
Equipment Used in Aquatic Therapy Applications	452

Chapter 42**Occupational Health and Safety****SEVGİ ÖZDİNÇ**

Introduction	455
Occupational Health and Its Legal Basis	455
Occupational Health and Occupational Diseases / Work-Related Diseases	456
Occupational Health Physiotherapy	458

Chapter 43**Physiotherapy and Rehabilitation for Pets****BÜŞRA İNAL • NURİYE ÖZENİN**

Introduction	463
Anatomy and Biomechanics of Pets	463
Problems in Pets	466
Physiotherapy and Rehabilitation Assessment Methods in Pets	467
Physiotherapy and Rehabilitation in Pets	469
Assistive Device Use	473
Conditions to be Considered During Exercise	474
Conclusion	474

