

Neuroscience For Rehabilitation

The purpose of this book is to educate readers regarding the efficacy of cognitive rehabilitation across a variety of neurological conditions, with specific emphasis on rehabilitation-related change detectable via neuroimaging. For ease of reference, this information is divided into separate chapters by neurological condition, since the nature of cognitive impairment and mechanism of rehabilitation may differ across populations. Also included are discussions of the use of neuroimaging in cognitive rehabilitation trials, rigorous design of cognitive rehabilitation trials to have greater scientific impact (e.g., obtaining Class I evidence), and future directions for the field. As such, the book is designed to be useful to both clinicians and researchers involved in the rehabilitation of such conditions so that they can make informed decisions regarding evidence-based treatment to deploy in clinical settings or to further study in research endeavors.

Cognitive Rehabilitation of Memory: A Clinical-Neuropsychological Introduction comprehensively reviews evidence-based research for each clinical tool, defining guidelines on how to assess patients and set treatment goals and best practices for creating individualized rehabilitation programs. The book also provides essential background knowledge on the nature and causes of memory impairment. Dr. Helmut Hildebrandt describes a wide range of interventions, including memory aids, learning strategies and non-cognitive treatment options. Outlines guidelines for treating patients with memory disorder. Reviews rehabilitation programs to improve memory function. Examines non-cognitive approaches for improving memory impairments. Now available in paperback, this updated new edition

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summarizes the latest developments in cognitive neuroscience related to rehabilitation, reviews the principles of successful interventions and synthesizes new findings about the rehabilitation of cognitive changes in a variety of populations. With greatly expanded sections on treatment and the role of imaging, it provides a comprehensive reference for those interested in the science, as well as including the most up-to-date information for the practising clinician. It provides clear and practical guidance on why cognitive rehabilitation may or may not work. How to use imaging methods to evaluate the efficacy of interventions. What personal and external factors impact rehabilitation success. How biological and psychopharmacological changes can be understood and treated. How to treat different disorders of language and memory, and where the field is going in research and clinical application.

Neurorehabilitation is an expanding field with an increasing clinical impact because of an ageing population. During the last 20 years neurorehabilitation has developed from a discipline with little scientific background, separated from other medical centers, to a medical entity largely based on the principles of 'evidenced based medicine' with strong ties to basic research and clinical neurology. Today neurorehabilitation is still a 'work in progress' and treatment standards are not yet established for all aspects of neurorehabilitation. There are very few books that address contemporary neurorehabilitation from this perspective. This volume moves the reader from theory to practice. It provides the reader with an understanding of the theoretical underpinnings of neurorehabilitation, as well as a clear idea about how (and why) to approach treatment decisions in individual patients. These clinical recommendations are based on a mix of established evidence and clinical experience that the authors bring to bear on their topics.

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Neuroscience for Addiction Medicine: From Prevention to Rehabilitation: Constructs and Drugs is the latest volume from Progress in Brain Research focusing on new trends and developments in addiction research. This established international series examines major areas of basic and clinical research within neuroscience, as well as popular emerging subfields such as addiction. This volume takes an integrated approach to review and summarize some of the most recent progress from the subfield of addiction research, with particular emphasis on potential applications in a clinical setting. Explores new trends and developments in basic and clinical research in the addiction subfield of neuroscience Uses an integrated approach to review and summarize recent progress Emphasizes potential applications in a clinical setting Enhances the literature of neuroscience by further expanding the established international series Progress in Brain Research

Neuroscience for Rehabilitation Lippincott Williams & Wilkins
The neuro rehab text that mirrors how you learn and how you practice! Take an evidence-based approach to the neurorehabilitation of adult and pediatric patients across the lifespan that reflects the APTA's patient management model and the WHO's International Classification of Function (ICF). You'll study examination and interventions from the body structure/function impairments and functional activity limitations commonly encountered in patients with neurologic disorders. Then, understanding the disablement process, you'll be able to organize the clinical data that leads to therapeutic interventions for specific impairments that can then be applied as appropriate anytime that impairment is detected, regardless of the medical diagnosis.

"This book provides a comprehensive collection for experts in the Neuroscience and Biomedical technology fields, outlining various concepts from cognitive neuroscience and dementia

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to neural technology and rehabilitation"--Provided by publisher.

First Published in 1994. Routledge is an imprint of Taylor & Francis, an informa company.

"Quick Reference Neuroscience for Rehabilitation Professionals is a concise and quick reference for the practitioner and student who are learning or reviewing the most relevant neuroscience principles supporting rehabilitation therapy. The updated Third Edition continues to meet a need in the rehabilitation profession that has gone unfilled--the ability to break down neuroscience information into the essential principles that can be used to understand neurological conditions and the principles underlying rehabilitation evaluation and practice. Quick Reference Neuroscience for Rehabilitation Professionals, Third Edition provides a quick review of a specific neuroscience concept or critical neuroscience principles supporting a specific rehabilitation intervention. In this era of information overload, this text rapidly and thoroughly provides condensed information in a user-friendly, easy-to-use format for the practitioner to better convey that information to a patient. Dr. Sharon Gutman has divided the text into three primary sections: the first addresses neuroanatomy; the second addresses the function of neurological systems underlying physical, psychiatric, cognitive, and visual perceptual disorders; and the final section addresses clinical

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neuropathology related to aging, addiction, memory, and the neurological substrates of sex and gender. A specific section describes the common neurodiagnostic tests that therapists do not administer but must have knowledge of when results are discussed at treatment team meetings"--Provided by publisher.

Sohlberg and Mateer's landmark introductory text helped put cognitive rehabilitation on the map for a generation of clinicians, researchers, educators, and students. Now, more than a decade later, the discipline has come of age. This new volume provides a comprehensive overview of this fast-evolving field. More than a revised edition, the text reflects the dramatic impact of recent advances in neuroscience and computer technology, coupled with changes in service delivery models. The authors describe a broad range of clinical interventions for assisting persons with acquired cognitive impairments--including deficits in attention, memory, executive functions, and communication--and for managing associated emotional and behavioral issues. For each approach, theoretical underpinnings are reviewed in depth and clinical protocols delineated. Difficult concepts are explained in a clear, straightforward fashion, with realistic case examples bringing the material to life. Also included are samples of relevant assessment instruments, rating scales, and patient handouts. Throughout, the

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new volume emphasizes the need to work from a community perspective, providing a framework for forming collaborative partnerships with families and caregivers. It is an essential resource for professionals across a wide variety of rehabilitation specialties, and will serve as a text in courses on rehabilitation methods and neurogenic disorders. It is well-established that the human nervous system is able to modify its functions in response to activity or experience. This response has been termed 'neuroplasticity' and involves the reorganisation of neural circuits that control human movement. Recent evidence suggests that the primary motor cortex (M1) can experience neuroplasticity following various types of physical activity. Although neuroplasticity can be stimulated in a variety of ways, recently, it has been reported following exercise, injury and during periods of rehabilitation. This book introduces the key concepts that underpin human motor control and its application to exercise science and rehabilitation. The topics covered here integrate research, theory and the clinical applications of exercise neuroscience that will support students, researchers and clinicians to understand how the nervous system responds, or adapts, to physical activity, training, rehabilitation and disease. The book uses a mix of neuromuscular physiology, electrophysiology and muscle physiology to provide a synthesis of current knowledge and research in the

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field of exercise neuroscience that specifically examines the effects of exercise training, injury and rehabilitation of the human nervous system. This is the first textbook of its kind that describes the neurological benefits of exercise, and will be a highly valuable text for undergraduate students studying exercise science, exercise physiology and physiotherapy.

TEXTBOOK OF FUNCTIONAL AND CLINICAL NEUROSCIENCE is designed to help students understand the nervous system structures and functions that allow for complex neurophysiological processing in support of human functions and behavior. Students are guided through learning the vocabulary of contemporary neuroscience, understanding the nervous system's structural organization and communications mechanisms, and learning how structures are linked anatomically and functionally to mediate specific behaviors. To facilitate learning, this text builds incrementally on basic information to introduce increasingly detailed and complex structures, functions, and terminology. As students proceed, they develop working knowledge for predicting neurological problems associated with specific diseases or injury, and analyzing appropriate interventions.

Boost your skills in planning and managing physical rehabilitation! Neuroscience: Fundamentals for Rehabilitation, 5th Edition provides a practical guide

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to the nervous system and how it affects the practice of physical and occupational therapy. Case studies and first-person stories from people with neurologic disorders make it easier to apply your knowledge to the clinical setting. New to this edition are new chapters on neuroanatomy imaging and neurologic examination techniques. Written by noted PT educator Laurie Lundy-Ekman, this book uses evidence-based research to help you understand neurologic disorders and treat clients who have physical limitations due to nervous system damage or disease. Logical, systems approach to neuroscience makes it easier to master complex information and provides a framework for conducting a neurologic examination and evaluation. A clinical perspective of neuroscience is provided through case studies, personal stories written by patients, and summaries of key features of neurologic disorders and the body systems they affect. Five sections - Overview of Neurology, Neuroscience at the Cellular Level, Development of the Nervous System, Vertical Systems, and Regions - first show how neural cells operate, and then allow you to apply your knowledge of neuroscience. Emphasis on topics critical to physical rehabilitation includes coverage of abnormal muscle tone, chronic pain, control of movement, and differential diagnosis of dizziness. Hundreds of color-coded illustrations show body structures and functions across systems.

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Clinical Notes case studies demonstrate how neuroscience knowledge may be applied to clinical situations. Pathology boxes provide a quick summary of the features of neurologic disorders commonly encountered in rehabilitation practice. New! Neuroimaging and Neuroanatomy Atlas chapter includes MRI and CT images. NEW! Neurologic Disorders and the Neurologic Examination chapter provides detailed descriptions and photographs of techniques. NEW! Diagnostic Clinical Reasoning boxes help you develop the ability to recognize patterns of signs and symptoms associated with specific diagnoses. NEW! Updated content reflects the most current research findings. NEW! Reader-friendly approach converts long, technical chapters into smaller, more accessible chapters. NEW! Reorganized chapters progress from the cellular view to the systems view to the regional view.

Rapidly growing knowledge in systems neuroscience may contribute to expand the range of activities in persons with disabilities, but in its practical application, cooperation between experts in different research fields is necessary. In this conference, the guest speakers and audiences will be from wide range of research fields; e.g., systems-neuroscience, neurology, engineering, psychology, and the attendees will discuss the possibilities.

Physical therapy services may be provided

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alongside or in conjunction with other medical services. They are performed by physical therapists (known as physiotherapists in many countries) with the help of other medical professionals. This book consists of 12 chapters written by several professionals from different parts of the world. The book covers different subjects, such as the effects of physical therapy, motor imagery, neuroscience-based rehabilitation for neurological patients, and applications of robotics for stroke and cerebral palsy. We hope that this book will open up new directions for physical therapists in the field of neurological physical therapy.

This thoroughly updated and extended edition covers the various cerebral visual disorders acquired after brain injury, as well as the rehabilitation techniques used to treat them. These are described within a brain plasticity framework, using data from single and group case studies along with follow up observation data. This original, tailor-made approach also includes the recording of eye movements for assessing scanning performance in scene perception and reading. The book gives a brief synopsis of the historical background on the subject, alongside an outline of intervention designs and methodological difficulties in the field, and goes on to discuss the mechanisms and processes that provide the foundations for recovery of function and successful adaptation in visually impaired patients. The author concludes by analyzing the importance of the procedures and outcomes of treatments to the reduction of patients' visual handicaps. The new edition also contains an appendix with recommendations on the case histories, diagnostics and treatments. It is ideal reading for

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students in clinical neuropsychology, as well as professionals in the fields of neurology, visual neuroscience and rehabilitation experts.

The definitive guide to 21st century investigations of multilingual neuroscience The Handbook of the Neuroscience of Multilingualism provides a comprehensive survey of neurocognitive investigations of multiple-language speakers. Prominent scholar John W. Schwieter offers a unique collection of works from globally recognized researchers in neuroscience, psycholinguistics, neurobiology, psychology, neuroimaging, and others, to provide a multidisciplinary overview of relevant topics. Authoritative coverage of state-of-the-art research provides readers with fundamental knowledge of significant theories and methods, language impairments and disorders, and neural representations, functions, and processes of the multilingual brain. Focusing on up-to-date theoretical and experimental research, this timely handbook explores new directions of study and examines significant findings in the rapidly evolving field of multilingual neuroscience. Discussions on the bilingual advantage debate, recovery and rehabilitation patterns in multilingual aphasia, and the neurocognitive effects of multilingualism throughout the lifespan allow informed investigation of contemporary issues. Presents the first handbook-length examination of the neuroscience and neurolinguistics of multilingualism Demonstrates how neuroscience and multilingualism intersect several areas of research, such as neurobiology and experimental psychology Includes works from prominent international scholars and researchers to provide global perspective Reflects cutting-edge research and promising areas of future study in the dynamic field of multilingual neuroscience The Handbook of the Neuroscience of Multilingualism is an invaluable resource for researchers and scholars in areas including

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multilingualism, psycholinguistics, second language acquisition, and cognitive science. This versatile work is also an indispensable addition to the classroom, providing advanced undergraduate and graduate students a thorough overview of the field.

In the last decade, important discoveries have been made in cognitive neuroscience regarding brain plasticity and learning such as the mirror neurons system and the anatomo-functional organization of perceptual, cognitive and motor abilities.... Time has come to consider the societal impact of these findings. The aim of this Research Topic of Frontiers in Psychology is to concentrate on two domains: neuro-education and neuro-rehabilitation. At the interface between neuroscience, psychology and education, neuro-education is a new inter-disciplinary emerging field that aims at developing new education programs based on results from cognitive neuroscience and psychology. For instance, brain-based learning methods are flourishing but few have been rigorously tested using well-controlled procedures. Authors of this Research Topic will present their latest findings in this domain using rigorously controlled experiments. Neuro-rehabilitation aims at developing new rehabilitation methods for children and adults with learning disorders. Neuro-rehabilitation programs can be based upon a relatively low number of patients and controls or on large clinical trials to test for the efficiency of new treatments. These projects may also aim at testing the efficiency of video-games and of new methods such as Trans Magnetic Stimulation (TMS) for therapeutic interventions in children or adolescents with learning disabilities. This Research Topic will bring together neuroscientists interested in brain plasticity and the effects of training, psychologists working with adults as well as with normally developing children and children with learning disabilities as well as education researchers directly

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confronted with the efficiency of education programs. The goal for each author is to describe the state of the art in his/her specific research domain and to illustrate how her/his research findings can impact education in the classroom or rehabilitation of children and adolescents with learning disorders.

The second edition of this introductory text uses clinical examples to bridge the gap between basic neuroscience and the practice of neurologic rehabilitation. Each chapter illustrates the relationship between the nervous system and behavior. Current, portable, and clearly written, the text covers discrete systems for acquiring information, the neural mechanisms that control specific kinds of human function, and how the nervous system responds to insult and injury. New in this edition: Neurotransmitters, support structures and blood supply, sensorimotor interaction, and aging of the nervous system.

Music is an important source of enjoyment, learning, and well-being in life as well as a rich, powerful, and versatile stimulus for the brain. With the advance of modern neuroimaging techniques during the past decades, we are now beginning to understand better what goes on in the healthy brain when we hear, play, think, and feel music and how the structure and function of the brain can change as a result of musical training and expertise. For more than a century, music has also been studied in the field of neurology where the focus has mostly been on musical deficits and symptoms caused by neurological illness (e.g., amusia, musicogenic epilepsy) or on occupational diseases of professional musicians (e.g., focal dystonia, hearing loss). Recently, however, there has been increasing interest and progress also in adopting music as a therapeutic tool in neurological rehabilitation, and many novel music-based rehabilitation methods have been developed to facilitate motor, cognitive, emotional, and social

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functioning of infants, children and adults suffering from a debilitating neurological illness or disorder. Traditionally, the fields of music neuroscience and music therapy have progressed rather independently, but they are now beginning to integrate and merge in clinical neurology, providing novel and important information about how music is processed in the damaged or abnormal brain, how structural and functional recovery of the brain can be enhanced by music-based rehabilitation methods, and what neural mechanisms underlie the therapeutic effects of music. Ideally, this information can be used to better understand how and why music works in rehabilitation and to develop more effective music-based applications that can be targeted and tailored towards individual rehabilitation needs. The aim of this Research Topic is to bring together research across multiple disciplines with a special focus on music, brain, and neurological rehabilitation. We encourage researchers working in the field to submit a paper presenting either original empirical research, novel theoretical or conceptual perspectives, a review, or methodological advances related to following two core topics: 1) how are musical skills and attributes (e.g., perceiving music, experiencing music emotionally, playing or singing) affected by a developmental or acquired neurological illness or disorder (for example, stroke, aphasia, brain injury, Alzheimer's disease, Parkinson's disease, autism, ADHD, dyslexia, focal dystonia, or tinnitus) and 2) what is the applicability, effectiveness, and mechanisms of music-based rehabilitation methods for persons with a neurological illness or disorder? Research methodology can include behavioural, physiological and/or neuroimaging techniques, and studies can be either clinical group studies or case studies (studies of healthy subjects are applicable only if their findings have clear clinical implications).

The first neuroanatomy text written specifically for physical

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therapy students Instructors finally have a resource created specifically for physical therapy students taking a neuroanatomy course. Neuroanatomy for Physical Therapy provides readers with an understanding of the anatomical localization of brain function in order to help them accurately interpret the wealth of new human brain images now available. The author, a recognized expert in human nervous system development, includes numerous case studies with patient presentations, and due to its importance in physical therapy, extensive coverage of peripheral nerve damage. • Content mirrors the standard physical therapy curriculum, freeing instructors from having to use neuroanatomy texts intended for medical students • Numerous line illustrations, angiography, and brain views from MRI and other imaging modalities • Author Tony Mosconi has been listed in the Who's Who of American Teachers (four different years) A full-color neuroscience text that skillfully integrates neuromuscular skeletal content Covers both pediatric and adult issues Beautiful full-color presentation with numerous images Neurorehabilitation in Physical Therapy delivers comprehensive coverage of the structure and function of the human nervous system. It also discusses normal motor development and motor control, as well as common treatment techniques in physical therapy. In order to be engaging to students, cases open each chapter, with questions about those cases appearing throughout the chapter. The text includes numerous tables, flow charts, illustrations, and multiple-choice board-style review questions and is enhanced by a roster of world-renowned clinical contributors. Stroke Rehabilitation: Insights from Neuroscience and Imaging informs and challenges neurologists, rehabilitation therapists, imagers, and stroke specialists to adopt more restorative and scientific approaches to stroke rehabilitation based on new evidence from neuroscience and neuroimaging

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literatures. The fields of cognitive neuroscience and neuroimaging are advancing rapidly and providing new insights into human behavior and learning. Similarly, improved knowledge of how the brain processes information after injury and recovers over time is providing new perspectives on what can be achieved through rehabilitation. Stroke Rehabilitation explores the potential to shape and maximize neural plastic changes in the brain after stroke from a multimodal perspective. Active skill based learning is identified as a central element of a restorative approach to rehabilitation. The evidence behind core learning principles as well as specific learning strategies that have been applied to retrain lost functions of movement, sensation, cognition and language are also discussed. Current interventions are evaluated relative to this knowledge base and examples are given of how active learning principles have been successfully applied in specific interventions. The benefits and evidence behind enriched environments is reviewed with examples of potential application in stroke rehabilitation. The capacity of adjunctive therapies, such as transcranial magnetic stimulation, to modulate receptivity of the damaged brain to benefit from behavioral interventions is also discussed in the context of this multimodal approach. Focusing on new insights from neuroscience and imaging, the book explores the potential to tailor interventions to the individual based on viable brain networks.

Neuroscience for Addiction Medicine: From Prevention to Rehabilitation - Methods and Interventions is the latest volume from Progress in Brain Research focusing on new trends and developments in addiction research. This established international series examines major areas of basic and clinical research within neuroscience, as well as popular emerging subfields such as addiction. This

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volume takes an integrated approach to review and summarize some of the most recent progress from the subfield of addiction research, with particular emphasis on potential applications in a clinical setting. Explores new trends and developments in basic and clinical research in the addiction subfield of neuroscience Uses an integrated approach to review and summarize recent progress Emphasizes potential applications in a clinical setting Enhances the literature of neuroscience by further expanding the established international series Progress in Brain Research

The first neuroanatomy text written specifically for physical therapy students Written by recognized experts in human nervous system development, Neuroanatomy for Rehabilitation provides physical therapy students with a thorough understanding of the anatomical localization of brain function. Approximately 200 line illustrations and photographs teach students how to accurately interpret the wealth of new human brain images now available.

The text opens with an informative section that discusses the structural and functional organization of the nervous system and includes coverage of functional neuroanatomy and response to injury. This is followed by sections covering:

- Vascular Supply of the Central Nervous System (arterial supply, venous drainage, response to injury)
- Cellular Organization of the Nervous System
- Development of the Central Nervous System
- Functional Neuroanatomy by Ascending Region
- The Brainstem, Cranial Nerves and Visual Pathways
- The Cerebellum and Basal Ganglia
- Diencephalon
- The Cortex

Each section opens with a

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case study and an overview of key concepts, and concludes with case discussion and review questions. No other text provides physical therapy students and instructors with such relevant, authoritative, and well-written material designed to enhance understanding of the human nervous system as *Neuroanatomy for Rehabilitation*.

Written by leading experts in the field, this invaluable text situates the practice of cognitive and behavioral rehabilitation in the latest research from neurobiology and cognitive neuroscience. Initial chapters review current findings on neuronal injury, plasticity, and recovery. The volume next examines the neurobiology of core cognitive domains--attention, memory, language, visuospatial awareness, and executive functioning--focusing on the processes underpinning both healthy and impaired functioning. Highlighting the practical applications of the research, authors describe available interventions in each domain and set forth clear recommendations for clinical practice. Also addressed are ways to understand and manage challenging behaviors, such as aggression, that may emerge in brain-injured persons. The concluding chapter provides overall strategies for helping people recover from the two most common forms of acquired neurological disability: traumatic brain injury and stroke.

The impaired brain has often been difficult to rehabilitate owing to limited knowledge of the brain system. Recently, advanced imaging techniques such as fMRI and MEG have allowed researchers to investigate spatiotemporal dynamics in the living human brain.

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Consequently, knowledge in systems neuroscience is now rapidly growing. Advanced techniques have found practical application by providing new prosthetics, such as brain–machine interfaces, expanding the range of activities of persons with disabilities, or the elderly. The book’s chapters are authored by researchers from various research fields such as systems neuroscience, rehabilitation, neurology, psychology and engineering. The book explores the latest advancements in neurorehabilitation, plasticity and brain–machine interfaces among others and constitutes a solid foundation for researchers who aim to contribute to the science of brain function disabilities and ultimately to the well-being of patients and the elderly worldwide. Neuro-robotics is one of the most multidisciplinary fields of the last decades, fusing information and knowledge from neuroscience, engineering and computer science. This book focuses on the results from the strategic alliance between Neuroscience and Robotics that help the scientific community to better understand the brain as well as design robotic devices and algorithms for interfacing humans and robots. The first part of the book introduces the idea of neuro-robotics, by presenting state-of-the-art bio-inspired devices. The second part of the book focuses on human-machine interfaces for performance augmentation, which can be seen as augmentation of abilities of healthy subjects or assistance in case of the mobility impaired. The third part of the book focuses on the inverse problem, i.e. how we can use robotic devices that physically interact with the human body, in order (a) to understand human motor

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control and (b) to provide therapy to neurologically impaired people or people with disabilities.

This practical handbook for clinicians covers pharmacological and non-pharmacological treatment options in neurological rehabilitation.

A professional guide to evidence-based pediatric cognitive rehabilitation in neurological disorders with practical intervention guidance.

Functional training develops the attributes and abilities required to perform tasks, skills and activities useful and relevant to daily life. Functional Exercise and Rehabilitation serves as an accessible and visual guide providing the essentials of therapeutic exercise and rehabilitation, including mobilization, stabilization and myofascial release. This book begins by explaining functional training and the foundation of the STRIVE approach. Chapter 2 introduces functional anatomy and Chapter 3 explains the fundamentals of neuroscience. The final chapters discuss the STRIVE principles and apply them to exercise, program design and injury recovery. Each chapter includes key point boxes, illustrations and photos of exercises discussed. Written by an exercise specialist and osteopath, this practical guide is presented in an easy-to-read style. Functional Exercise and Rehabilitation is essential reading for all health professionals, sports therapists and trainers involved in exercise prescription.

Applied Neurosciences for the Allied Health Professions provides a solid and comprehensive foundation in neurosciences for undergraduates and pre-registration postgraduate students. Using a

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multidisciplinary approach, it helps understand the commonly found problems in neurological rehabilitation and inform clinical practice. The book starts with the foundation of basic neurosciences, covering the normal function and structure of the nervous system from the organism as a whole through to the molecular. It then goes on to discuss the most commonly found disorders and how to manage them, covering both behavioural and pharmacotherapeutic interventions. The book closes by summarising current principles underpinning best practice and also looks to the future by identifying gaps in evidence-based practice with ideas for future research and what the future may hold for rehabilitation. Throughout the book, a variety of supplementary information boxes point towards additional information such as Case Studies which highlight the clinical relevance of topics discussed; and a variety of Research Boxes which refer to more advanced material and/or original research studies. Each chapter ends with self-assessment questions which will check progress and prompt students to reflect on how the information presented in the chapter could be applied to clinical practice. Lays the foundation of basic neurosciences for allied health students Outlines management strategies for the most commonly found disorders in neurological rehabilitation Case studies used to highlight clinical relevance End of chapter self-assessment questions

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of different levels of complexity with answers and feedback

Brain plasticity is the focus of a growing body of research with significant implications for neurorehabilitation. This state-of-the-art volume explores ways in which brain-injured individuals may be helped not only to compensate for their loss of cognitive abilities, but also possibly to restore those abilities. Expert contributors examine the extent to which damaged cortical regions can actually recover and resume previous functions, as well as how intact regions are recruited to take on tasks once mediated by the damaged region. Evidence-based rehabilitation approaches are reviewed for a range of impairments and clinical populations, including both children and adults.

Written with rehabilitation professionals in mind, this work connects neuroscience theory to clinical application with stories written by real people with neurological disorders and case studies summarizing key features of neurological disorders. Addresses the information needed to understand the neuroscience of clinical rehabilitation. This book describes basic neuroanatomical structures and functions, neuropathology underlying specific clinical conditions, and theories supporting clinical treatment.

Quick Reference Neuroscience for Rehabilitation Professionals is a concise and quick reference for

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the practitioner and student who are learning or reviewing the most relevant neuroscience principles supporting rehabilitation therapy.

Volume 2 of the Textbook of Neural Repair and Rehabilitation stands alone as a clinical handbook for neurorehabilitation.

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