

high intensity gait training

High Intensity Gait Training: Revolutionizing Mobility and Rehabilitation

high intensity gait training is rapidly gaining recognition as a powerful approach in physical therapy and rehabilitation, especially for individuals recovering from neurological injuries or conditions that impair walking. Unlike traditional gait training, which often emphasizes slow, repetitive practice, high intensity gait training pushes the body to work harder and adapt more quickly, leading to significant improvements in walking ability, endurance, and overall mobility.

If you or someone you know is undergoing rehabilitation after a stroke, spinal cord injury, or dealing with conditions such as Parkinson's disease or multiple sclerosis, understanding the principles and benefits of high intensity gait training can provide hope and direction for recovery.

What Exactly is High Intensity Gait Training?

At its core, high intensity gait training involves practicing walking at a pace, duration, or level of effort that challenges the cardiovascular and muscular systems beyond typical therapy sessions. This method focuses on increasing walking speed, step frequency, and the overall workload during rehabilitation sessions to stimulate neuroplasticity—the brain's ability to reorganize itself and form new neural connections.

Unlike low or moderate intensity gait exercises, which may involve slow walking or isolated muscle strengthening, high intensity training integrates fast-paced, repetitive walking tasks that simulate real-life mobility demands. The goal is to push patients out of their comfort zones, encouraging their bodies to adapt and improve more rapidly.

How Does High Intensity Gait Training Work?

The science behind this approach lies in the principle of “task-specific training” combined with high intensity effort. When patients actively engage in walking at a challenging pace, their nervous system receives stronger and more frequent signals, promoting better motor control and muscle coordination.

Physical therapists often use treadmills with body-weight support systems, overground walking drills, or robotic-assisted devices to facilitate high intensity gait training. These tools help ensure safety while allowing patients to maintain the required speed and effort level.

The Benefits of High Intensity Gait Training

High intensity gait training offers a multitude of advantages, making it an appealing option for both clinicians and patients.

Improved Walking Speed and Endurance

One of the most direct benefits is an increase in walking speed. Patients who participate in high intensity sessions tend to regain the ability to walk faster and longer distances. This improvement is crucial for regaining independence in daily activities such as shopping, commuting, or socializing.

Enhanced Cardiovascular Fitness

Because the training elevates heart rate and challenges the cardiovascular system, it also contributes to better overall fitness. This means patients not only walk better but also experience improved stamina and reduced fatigue throughout the day.

Neuroplasticity and Functional Recovery

High intensity gait training stimulates the brain's plasticity by repeatedly activating neural pathways involved in walking. This can lead to more permanent improvements in motor function, especially after strokes or traumatic brain injuries.

Psychological Benefits

Engaging in challenging physical activity often boosts confidence and motivation. Patients frequently report feeling more empowered and optimistic about their recovery journey.

Who Can Benefit from High Intensity Gait Training?

While this training style is particularly popular in neurological rehabilitation, its applications are broad.

Stroke Survivors

Individuals recovering from stroke often suffer from hemiparesis or weakness on one side, making walking difficult. High intensity gait training can help retrain the brain and muscles to improve symmetry, balance, and gait speed.

Patients with Spinal Cord Injuries

For those with incomplete spinal cord injuries, this approach can enhance the ability to walk independently by strengthening remaining neural connections and muscles.

People with Parkinson's Disease

Parkinson's patients frequently experience shuffling gait and freezing episodes. High intensity gait training can improve stride length and reduce these symptoms by promoting more consistent and faster steps.

Older Adults and Others with Mobility Limitations

Even outside of neurological conditions, older adults or individuals with mobility impairments can benefit from high intensity gait training to maintain or regain functional independence.

Implementing High Intensity Gait Training: Practical Tips

If you're considering incorporating high intensity gait training into rehabilitation, here are some helpful insights:

- **Start Gradually:** While the goal is high intensity, it's important to tailor the pace and duration according to the patient's current ability to prevent injury or discouragement.
- **Use Technology Wisely:** Tools like treadmills with body-weight support or wearable sensors can help monitor progress and ensure proper technique.
- **Focus on Consistency:** Regular sessions, ideally multiple times per week, yield better outcomes than sporadic training.
- **Incorporate Functional Tasks:** Adding obstacles, turns, or dual-task

challenges during gait training can simulate real-life walking situations.

- **Monitor Heart Rate:** Keeping track of cardiovascular response ensures training stays within safe but effective intensity levels.

Challenges and Considerations

While the benefits are clear, high intensity gait training isn't without challenges. Some patients may experience fatigue, muscle soreness, or frustration due to the demanding nature of the exercises. It's crucial that therapists provide encouragement and adjust protocols as needed to maintain motivation.

Additionally, not all individuals are suitable candidates—those with severe cardiovascular issues, uncontrolled hypertension, or certain orthopedic conditions should be carefully evaluated before starting high intensity programs.

Addressing Safety and Patient Comfort

Ensuring patient safety during high intensity gait training is paramount. Using assistive devices, continuous supervision, and gradually increasing intensity can minimize risks. Moreover, encouraging open communication about pain or discomfort helps tailor sessions appropriately.

The Future of High Intensity Gait Training

Advancements in rehabilitation technology and growing research continue to refine high intensity gait training protocols. Innovations like virtual reality environments, wearable robotics, and AI-driven feedback systems are making it possible to deliver more personalized, engaging, and effective gait training experiences.

Researchers are also exploring how combining high intensity gait training with other therapies—such as functional electrical stimulation or pharmacological treatments—can further enhance recovery outcomes.

For patients and clinicians alike, embracing these developments holds promise for better mobility restoration and quality of life.

High intensity gait training represents a shift towards more dynamic, responsive rehabilitation strategies that prioritize functional recovery and patient empowerment. By challenging the body and brain to work harder and smarter, it opens the door to faster and more meaningful improvements in walking ability. Whether you're a therapist designing treatment plans or someone navigating recovery, understanding this approach can be a key step toward regaining independence and confidence on your feet.

Frequently Asked Questions

What is high intensity gait training?

High intensity gait training is a rehabilitation approach that involves repetitive walking exercises performed at a challenging intensity level to improve walking speed, endurance, and overall mobility.

Who can benefit from high intensity gait training?

Individuals recovering from stroke, spinal cord injury, traumatic brain injury, or other neurological and musculoskeletal conditions that affect walking may benefit from high intensity gait training.

How does high intensity gait training improve walking ability?

By engaging in repetitive and challenging walking tasks, high intensity gait training promotes neuroplasticity, muscle strength, cardiovascular endurance, and coordination, leading to improved gait patterns and functional mobility.

What are common methods used in high intensity gait training?

Common methods include treadmill training with body weight support, overground walking at increased speeds, use of robotic exoskeletons, and interval training to increase cardiovascular and muscular demand.

Is high intensity gait training safe for elderly patients?

When properly supervised and tailored to the individual's health status, high intensity gait training can be safe for elderly patients and may help improve their walking capacity and reduce fall risk.

How often should high intensity gait training be

performed for optimal results?

Typically, sessions are conducted 3 to 5 times per week for several weeks, with each session lasting 30 to 60 minutes, but the frequency and duration should be individualized based on patient tolerance and goals.

What evidence supports the effectiveness of high intensity gait training?

Multiple clinical studies have shown that high intensity gait training can significantly improve walking speed, endurance, and functional mobility compared to conventional low-intensity rehabilitation approaches.

Can high intensity gait training be combined with other therapies?

Yes, it is often combined with strength training, balance exercises, and task-specific functional training to maximize recovery and improve overall motor function.

Additional Resources

High Intensity Gait Training: Advancements and Implications in Rehabilitation

high intensity gait training has emerged as a transformative approach within the realm of physical rehabilitation, particularly for individuals recovering from neurological injuries or conditions that impact mobility. This method, characterized by rigorous, repetitive, and task-specific walking exercises, aims to enhance gait performance, improve cardiovascular fitness, and accelerate functional recovery. As rehabilitation paradigms shift towards evidence-based, patient-centered care, high intensity gait training offers promising avenues to optimize outcomes for diverse patient populations.

Understanding High Intensity Gait Training

High intensity gait training involves structured walking sessions that push patients to achieve elevated levels of effort and work rate, often quantified through metrics such as heart rate, speed, or perceived exertion. Unlike conventional gait training, which may prioritize low-intensity, assisted walking, this approach encourages patients to engage in more demanding and repetitive walking tasks. The underlying principle is to harness neuroplasticity and promote motor relearning by providing sufficient intensity and volume of practice.

Clinicians typically employ technologies such as treadmill training with body-weight support, robotic exoskeletons, or overground walking protocols to

facilitate high intensity sessions. These interventions often integrate real-time feedback and adaptive difficulty levels to maintain optimal challenge and motivation.

Key Features and Protocols

Several defining characteristics distinguish high intensity gait training from traditional rehabilitation methods:

- **Intensity Monitoring:** Use of heart rate monitors or exertion scales to maintain training within 70-85% of maximum heart rate or Borg Rating of Perceived Exertion between 13 and 17.
- **Task-Specificity:** Emphasis on walking-related activities rather than generalized exercises to enhance functional gait patterns.
- **Repetition and Volume:** High number of gait cycles per session to stimulate neuromuscular adaptations.
- **Progressive Overload:** Gradual increase in walking speed, duration, or incline to continuously challenge the patient's capabilities.

Clinical Applications and Patient Populations

High intensity gait training has been extensively studied across various neurological conditions, including stroke, spinal cord injury (SCI), Parkinson's disease, and multiple sclerosis. Its applicability hinges on the patient's baseline functional status and medical stability, but evidence suggests broad benefits.

Stroke Rehabilitation

Post-stroke gait impairments are common, often resulting in reduced walking speed, asymmetry, and decreased endurance. Several randomized controlled trials have demonstrated that high intensity gait training can significantly improve walking speed and distance compared to conventional therapy. A 2016 meta-analysis published in the Journal of Stroke and Cerebrovascular Diseases reported that patients undergoing high intensity treadmill training improved their 6-minute walk test distance by an average of 45 meters more than controls.

Importantly, this method also promotes cardiovascular fitness, addressing the

heightened risk of comorbidities in stroke survivors. However, patient selection is critical; those with severe motor deficits or cardiovascular instability may require modified protocols.

Spinal Cord Injury

In individuals with incomplete SCI, restoring ambulation is a central rehabilitation goal. High intensity gait training, often facilitated by robotic devices or body-weight-supported treadmill systems, can enhance walking speed, endurance, and lower limb muscle activation patterns. Emerging evidence indicates that intensive treadmill training can induce spinal cord plasticity, contributing to functional improvements beyond what traditional therapy achieves.

Nevertheless, challenges such as access to specialized equipment and the need for trained personnel can limit widespread implementation.

Other Neurological Disorders

Patients with Parkinson's disease benefit from high intensity gait training through improvements in stride length, gait velocity, and reduction in freezing episodes. Similarly, multiple sclerosis patients show gains in walking endurance and reduced fatigue levels. These outcomes highlight the versatility of the approach across motor disorders.

Comparative Effectiveness and Limitations

When compared to low-intensity or conventional gait rehabilitation, high intensity protocols generally yield superior improvements in walking capacity and cardiovascular health. However, the intensity threshold must be carefully calibrated to avoid overexertion or injury, especially in vulnerable populations.

- **Pros:**

- Accelerated functional recovery through enhanced neuroplasticity.
- Improved cardiovascular conditioning alongside motor benefits.
- Greater patient engagement due to measurable progress and feedback.

- **Cons:**

- Potential for fatigue or musculoskeletal strain if improperly supervised.
- Resource-intensive, requiring specialized equipment and trained therapists.
- Not universally suitable for patients with severe impairments or comorbidities.

Integration With Technology

Advancements in rehabilitation technology have catalyzed the refinement of high intensity gait training. Robotic exoskeletons and body-weight support systems enable precise control over gait parameters, allowing for safe delivery of high-intensity protocols even in patients with limited voluntary control.

Wearable sensors and mobile health applications are increasingly integrated to monitor performance metrics, quantify intensity, and provide biofeedback. This data-driven approach enhances personalization and may improve adherence.

Future Directions and Research Perspectives

The evolving landscape of high intensity gait training calls for further investigation into optimal dosing, long-term effects, and cost-effectiveness. Personalized medicine approaches, leveraging patient-specific data and machine learning algorithms, may soon tailor training intensity and progression dynamically.

Moreover, combining high intensity gait training with adjunct therapies such as functional electrical stimulation, pharmacological agents, or virtual reality environments could amplify rehabilitation outcomes.

In sum, high intensity gait training represents a paradigm shift in mobility rehabilitation, emphasizing rigorous, task-specific, and patient-tailored interventions. Its integration into clinical practice continues to grow, driven by accumulating evidence and technological innovation. As rehabilitation professionals embrace this approach, the potential to restore walking function and improve quality of life for individuals with neurological impairments becomes increasingly attainable.

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high intensity gait training: *Neurologic Interventions for Physical Therapy- E-Book* Suzanne Tink Martin, Mary Kessler, 2020-05-05 - UPDATED! Best evidence for interventions; clear, concise tables; graphics and pictures; and current literature engage you in the spectrum of neurologic conditions and interventions. - NEW! Autism Spectrum Disorder chapter covers clinical features, diagnosis, and intervention, with a special focus on using play and aquatics, to support the integral role of physical therapy in working with children and families with autism. - NEW! Common threads throughout the Children section focus on motor competence as a driving force in a child's cognitive and language development and highlight how meaningful, fun activities with family and friends encourage children with disabilities to participate. - UPDATED! Neuroanatomy chapter provides a more comprehensive review on nervous system structures and their contributions to patient function and recovery after an injury or neurologic condition. - UPDATED! Adult chapters feature updated information on medical and pharmacological management. - NEW! The Core Set of Outcome Measures for Adults with Neurologic Conditions assists you in measuring common outcomes in the examination and evaluation of patients. - NEW! Emphasis on the evidence for locomotor training, dual-task training, and high intensity gait training are included in the intervention sections.

high intensity gait training: *Umphred's Neurological Rehabilitation - E-Book* Rolando T. Lazaro, 2025-12-03 **Selected for 2025 Doody's Core Titles® in Physical Medicine and Rehabilitation**Develop essential problem-solving strategies for providing individualized, effective neurologic care! Under the leadership of Rolando Lazaro, Umphred's Neurological Rehabilitation, Eighth Edition, covers the therapeutic management of people with activity limitations, participation restrictions, and quality-of-life issues following a neurological event across the lifespan. This comprehensive reference provides foundational knowledge and addresses the best evidence for examination tools and interventions commonly used in today's clinical practice. It applies a time-tested, evidence-based approach to neurological rehabilitation that is perfect for both the classroom and the clinic. - NEW! Content addresses the movement system and clinical practice guidelines - NEW! Two new chapters on special focus topics explore COVID-19 and reframing selected intervention strategies - NEW! Content explores COVID-19 as it relates to the neurologic system - NEW! Enhanced ebook version, included with every new print purchase, features videos and appendices and supplemental content for select chapters, plus digital access to all the text, figures, and references, with the ability to search, customize content, make notes and highlights, and have content read aloud - UPDATED! Coverage focuses on linking evidence-based examination and intervention tools - Comprehensive coverage offers a thorough understanding of all aspects of neurological rehabilitation across the lifespan — from pediatrics to geriatrics - Expert authors and editors lend their experience and guidance for on-the-job success - UNIQUE! Section on neurological problems accompanying specific system problems includes hot topics such as poor vision, vestibular dysfunction, dementia and problems with cognition, and aging with a disability - Problem-solving approach helps you apply your knowledge to examinations, evaluations, prognoses, and intervention strategies - Evidence-based research sets up best practices, covering topics such as the theory and practice of neurologic rehabilitation; evidence-based examination and intervention tools; and the patient's psychosocial concerns - Case studies use real-world examples to promote problem-solving skills - Terminology adheres to best practices, following The Guide to Physical Therapy Practice and the WHO-ICF World Health model

high intensity gait training: Interfacing Humans and Machines for Rehabilitation and Assistive Devices Carlos A. Cifuentes, Jan Veneman, Eduardo Rocon, Carlos Rodriguez-Guerrero, 2022-01-24 Dr Jan Veneman is employed by Hocoma AG. All other Topic Editors declare no competing interests with regards to the Research Topic subject.

high intensity gait training: Rehabilitation Robots for Neurorehabilitation in High-, Low-, and Middle-Income Countries Michelle Jillian Johnson, Rochelle J. Mendonca, 2023-10-27 Rehabilitation Robots for Neurorehabilitation in High, Low, and Middle Income Countries: Current Practice, Barriers, and Future Directions describes the state-of-art research of stroke rehabilitation using robot systems in selected High Income Countries (HICs) and Low and Middle Income Countries (LMICs), along with potential solutions that enable these technologies to be available to clinicians worldwide, regardless of country and economic status. The book brings together engineers and clinicians, offers insights into healthcare disparities, and highlights potential solutions to facilitate the availability and accessibility of more robot systems to stroke survivors and their clinicians worldwide, regardless of country and economic status. In addition, the book provides examples on how robotic technology is used to bridge rehabilitation gaps in LMICs and describes potential strategies for increasing the expansion of robot-assisted stroke rehabilitation across more LMICs. - Provides a global picture of robot-assisted neurorehabilitation - Describes stroke healthcare in selected LMICs and selected HICs, along with disparity issues - Discusses potential barriers to the penetration of rehabilitation robots into LMICs - Presents concrete examples on how clinicians and engineers have begun to address healthcare gaps with rehabilitation robotics and how to deal with accessibility barriers

high intensity gait training: Stroke Recovery and Rehabilitation, 2nd Edition Richard D. Zorowitz, 2014-09-18 The definitive core text in its field, Stroke Recovery and Rehabilitation is a comprehensive reference covering all aspects of stroke rehabilitation ó from neurophysiology of stroke through the latest treatments and interventions for functional recovery and restoration of mobility. This second edition is completely updated to reflect recent advances in scientific understanding of neural recovery and growing evidence for new clinical therapies. The second edition ó which includes free e-book access with every print purchase ó continues to provide in-depth information on the assessment and management of all acute and long-term stroke-related impairments and complications including cognitive dysfunctions, musculoskeletal pain, and psychological issues. It examines risk factors, epidemiology, prevention, and neurophysiology as well as complementary and alternative therapies, functional assessments, care systems, ethical issues, and community and psychosocial reintegration. With contributions from over 100 acknowledged leaders from every branch of the stroke recovery field, this edition features expanded coverage of key issues such as the role of robotics and virtual reality in rehabilitation. New chapters have been incorporated to cover fields of recent exploration including transcranial magnetic stimulation, biomarkers, and genetics of recovery as well as essentials like the use of medication and the survivorís perspective. The up-to-date presentation of scientific underpinnings and multi-specialty clinical perspectives from physical medicine and rehabilitation, neurology, physical therapy, occupational therapy, speech and language pathology, and nursing ensures that Stroke Recovery and Rehabilitation will continue to serve as an invaluable reference for every health care professional working to restore function and help stroke survivors achieve their maximum potential. New to Stroke Recovery and Rehabilitation, Second Edition All chapters are thoroughly revised and updated to reflect advances in scientific understanding of neural recovery and clinical progress Five completely new chapters and expanded coverage of key issues that drive the field forward New contributions from leading stroke specialists from all involved disciplines Includes access to the fully-searchable downloadable ebook

high intensity gait training: Gerontechnology VI Lara Guedes de Pinho, César Fonseca, Enrique Moguel, 2025-05-01 This book gathers peer-review contributions to the 7th International Workshop on Gerontechnology, IWOG 2024, held on November 28, 2024, in Évora, Portugal. They report on cutting-edge technologies and optimized workflows for promoting active aging and

assisting older adults at home, as well as in healthcare centers. They discuss the main challenges in the development, use and delivery of health care services and technologies. Besides proposing solutions for improving monitoring and management of health parameters and age-related diseases, the chapters also describe approaches for helping seniors in their daily tasks and facilitating their communication and integration with assistive technologies. All in all, this book provides health professionals, researchers, and service providers with extensive information on the latest trends in the development and application of gerontechnology, with a special emphasis on improving quality of life and social integration of the elderly.

high intensity gait training: Neurorehabilitation Technology David J. Reinkensmeyer, Laura Marchal-Crespo, Volker Dietz, 2022-11-15 This revised, updated, and substantially expanded third edition provides an accessible, practical overview of major areas of research, technical development and clinical application in the field of neurorehabilitation movement therapy. The initial section provides the basic framework and a rationale for technology application in movement therapy by summarizing recent findings in neuroplasticity and motor learning. The following section provides a detailed overview of the movement physiology of various neurologic conditions, illustrating how this knowledge has been used to design various neurorehabilitation technologies. The third section then explains the principles of human-machine interaction for movement rehabilitation. The fourth section provides an overview of assessment technology and predictive modeling in neurorehabilitation. The fifth section provides a survey of technological approaches to neurorehabilitation, including spinal cord stimulation, functional electrical stimulation, virtual reality, wearable sensing, brain computer interfaces, mobile technologies, and telerehabilitation. The final two sections examine in greater detail the ongoing revolution in robotic therapy for upper extremity movement and walking, respectively. The promises and limitations of these technologies in neurorehabilitation are discussed, including an Epilogue which debates the impact and utility of robotics for neurorehabilitation. Throughout the book the chapters provide detailed practical information on state-of-the-art clinical applications of these devices following stroke, spinal cord injury, and other neurologic disorders and future developments in the field. The text is illustrated throughout with photographs and schematic diagrams which serve to clarify the information for the reader. Neurorehabilitation Technology, Third Edition is a valuable resource for neurologists, biomedical engineers, roboticists, rehabilitation specialists, physiotherapists, occupational therapists and those training in these fields. Chapter "Spinal Cord Stimulation to Enable Leg Motor Control and Walking in People with Spinal Cord Injury is available open access under a Creative Commons Attribution 4.0 International License via link.springer.com.

high intensity gait training: Exercise on Brain Health , 2019-10-11 Exercise on Brain Health, Volume 147 in the International Review of Neurobiology series, highlights new advances in the field, with this new volume presenting interesting chapters on Exercise on bipolar disorder in humans, Exercise on Parkinson's disease in humans, Exercise on spinal cord injury in animals, Exercise on spinal cord injury in humans, Exercise promotes synaptic plasticity, Exercise promotes neural connectivity, Exercise on spinogenesis, Peripheral-central crosstalk of exercise on brain health, Exercise and Parkinson's, Exercise on binge alcohol consumption, Exercise on depression, and Exercise on chronic fatigue syndrome, and more. - Provides the authority and expertise of leading contributors from an international board of authors - Summarizes the neuroprotective effects of physical exercise interventions on different brain disorders/injuries - Provides clinical and pre-clinical evidence showing how effective physical exercise is neuroprotective

high intensity gait training: An Introduction to Rehabilitation Engineering Rory A. Cooper, Hisaichi Ohnabe, Rosemarie Cooper, 2025-11-12 In response to the growing demand for a foundational resource in rehabilitation engineering, Dr. Cooper - renowned innovator and leader in the field - joins a team of knowledgeable contributors to present the fully updated Introduction to Rehabilitation Engineering, Second Edition. This comprehensive guide introduces both foundational principles and real-world applications of rehabilitation engineering (RE), making it an essential text for students, educators and professionals alike. Covering 18 in-depth chapters, this edition explores

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- Covers essential topics such as device design, service delivery models, universal design principles and technology transfer mechanisms.
- Emphasizes real-world applications of RE, including areas like wheelchair design, prosthetics and orthotics, web accessibility and communications technology, robotics in rehabilitation and adaptive sports, offering readers a tangible understanding of how these technologies impact daily life.
- Serves as a concise yet thorough introduction, providing readers with a solid foundational understanding of RE, while stimulating further exploration and research in the field.

high intensity gait training: New advances in Rehabilitation of Stroke Xiao Lu, Sheng Li, Xiquan Hu, Hua Yuan, Yue Lan, 2024-01-22 Worldwide, stroke remains one of the leading causes of death and long-term disability, with an estimated prevalence of 2.5%. The prevalence of people living with the effects of stroke has increased because of the growing aging population. As the number of stroke survivors increases, so does the demand for function rehabilitation of stroke. The goal of conventional rehabilitation is to improve residual function and restore independence, but its impact is still limited. Novel therapeutic approaches remain urgent and the potential mechanisms underlying these approaches require further exploration. Therefore, in this Research Topic, our goals include: (1) to explore novel rehabilitation approaches of stroke in both acute and chronic stages; (2) to explore the potential mechanisms underlying novel rehabilitation approaches of stroke; (3) to explore different situations and challenges across different countries regarding rehabilitation of stroke; (4) to identify ways to further improve the quality of rehabilitation for stroke; (5) to identify and remove barriers that limit patients' access to appropriate rehabilitation services.

high intensity gait training: The First Outstanding 50 Years of "Università Politecnica delle Marche" Sauro Longhi, Andrea Monteriù, Alessandro Freddi, Lucia Aquilanti, Maria Gabriella Ceravolo, Oliana Carnevali, Mario Giordano, Gianluca Moroncini, 2020-01-02 The book describes the significant multidisciplinary research findings at the Università Politecnica delle Marche and the expected future advances. It addresses some of the most dramatic challenges posed by today's fast-growing, global society and the changes it has caused. It also discusses solutions to improve the wellbeing of human beings. The book covers the main research achievements in the various disciplines of the life sciences, and includes chapters that highlight mechanisms relevant to all aspects of human diseases, the molecular, cellular, and functional basis of therapy, and its translation into the management of people's health needs. It also describes research on traditional and innovative foods to enhance quality, safety and functionality, and to develop bioactive/nutraceutical compounds. Further chapters address conservation and management of various environments, from the forests to the oceans, describing the studies on countermeasures against climate changes and terrestrial/aquatic pollutants, and on terrestrial/marine biodiversity, ecosystems and landscapes, erosion of genetic biodiversity, innovative aquaculture feed, sustainable crop production and management of forests. Lastly, the book reports the findings of research work on different classes of biomolecules, and on the molecular basis of antibiotic resistances and their diffusion.

high intensity gait training: Nature-Based Allied Health Practice Amy Wagenfeld, Shannon Marder, 2023-10-19 The benefits of interacting with nature for our social, cognitive, and physical wellbeing are well documented. But how practical is it to take therapy into nature, or bring nature into therapy? This evidence-based and accessible guide demonstrates easily workable, creative, tried-and-tested strategies for bringing nature into therapy. It includes simple and fun ready-to-go activity ideas. Using the life-course as a framework, the authors highlight the impact of nature at every stage of human development. From younger children to older adults, anyone can benefit from outdoor therapy, and different therapeutic offerings can be adapted to suit most individuals and groups. Resources are included to help assess a program's readiness to incorporate nature, create plans to take therapy outdoors (or bring the outside in), and evaluate the impact it could have for patients or clients. With testimonials from service users who have felt the benefits of nature-based practices, and case studies highlighting excellence in practice from health and social care professionals across various fields, this book will inspire and empower allied health and mental health practitioners to take their therapy practice outdoors.

high intensity gait training: Stroke Recovery and Rehabilitation Richard Harvey, Richard F. Macko, Joel Stein, Carolee Winstein, Richard D. Zorowitz, 2008-11-20 A Doody's Core Title 2012 Stroke Recovery and Rehabilitation is the new gold standard comprehensive guide to the management of stroke patients. Beginning with detailed information on risk factors, epidemiology, prevention, and neurophysiology, the book details the acute and long-term treatment of all stroke-related impairments and complications. Additional sections discuss psychological issues, outcomes, community reintegration, and new research. Written by dozens of acknowledged leaders in the field, and containing hundreds of tables, graphs, and photographic images, Stroke Recovery and Rehabilitation features: The first full-length discussion of the most commonly-encountered component of neurorehabilitation Multi-specialty coverage of issues in rehabilitation, neurology, PT, OT, speech therapy, and nursing Focus on therapeutic management of stroke related impairments and complications An international perspective from dozens of foremost authorities on stroke Cutting edge, practical information on new developments and research trends Stroke Recovery and Rehabilitation is a valuable reference for clinicians and academics in rehabilitation and neurology, and professionals in all disciplines who serve the needs of stroke survivors.

high intensity gait training: Proceedings Of 7th International Conference & Exhibition on Physiotherapy & Physical Rehabilitation : 2019 ConferenceSeries, 2019-02-25 March 25-26, 2019 Rome, Italy Physiotherapy Techniques and Exercises, Rehabilitation Methods, Neurological Physiotherapy, Neurorehabilitation, Manual Physiotherapies, Physiotherapy methods and Instrumentation, Physiotherapy Management and Neurorehabilitation, Sports medicine, Pediatric Physiotherapy, Yoga & Fitness as Physical Therapy, Acupuncture, Arthritis, Geriatric Rehabilitation, Sports & Physiotherapy, Nursing Physiotherapy, Physiotherapy in Treatment & Care, Herbal physical therapy medicine, Traditional physical therapy medicine, Chinese physical therapy medicine, Complementary physical therapy medicine, Integrative physical therapy medicine, Advancements in Physiotherapy, Physiotherapy in Treatment & Care, Chest and Respiratory physiotherapy,

high intensity gait training: Intelligent Robotics and Applications Huayong Yang, Honghai Liu, Jun Zou, Zhouping Yin, Lianqing Liu, Geng Yang, Xiaoping Ouyang, Zhiyong Wang, 2023-10-10 The 9-volume set LNAI 14267-14275 constitutes the proceedings of the 16th International Conference on Intelligent Robotics and Applications, ICIRA 2023, which took place in Hangzhou, China, during July 5-7, 2023. The 413 papers included in these proceedings were carefully reviewed and selected from 630 submissions. They were organized in topical sections as follows: Part I: Human-Centric Technologies for Seamless Human-Robot Collaboration; Multimodal Collaborative Perception and Fusion; Intelligent Robot Perception in Unknown Environments; Vision-Based Human Robot Interaction and Application. Part II: Vision-Based Human Robot Interaction and Application; Reliable AI on Machine Human Reactions; Wearable Sensors and Robots; Wearable Robots for Assistance, Augmentation and Rehabilitation of Human Movements; Perception and Manipulation of

Dexterous Hand for Humanoid Robot. Part III: Perception and Manipulation of Dexterous Hand for Humanoid Robot; Medical Imaging for Biomedical Robotics; Advanced Underwater Robot Technologies; Innovative Design and Performance Evaluation of Robot Mechanisms; Evaluation of Wearable Robots for Assistance and Rehabilitation; 3D Printing Soft Robots. Part IV: 3D Printing Soft Robots; Dielectric Elastomer Actuators for Soft Robotics; Human-like Locomotion and Manipulation; Pattern Recognition and Machine Learning for Smart Robots. Part V: Pattern Recognition and Machine Learning for Smart Robots; Robotic Tactile Sensation, Perception, and Applications; Advanced Sensing and Control Technology for Human-Robot Interaction; Knowledge-Based Robot Decision-Making and Manipulation; Design and Control of Legged Robots. Part VI: Design and Control of Legged Robots; Robots in Tunnelling and Underground Space; Robotic Machining of Complex Components; Clinically Oriented Design in Robotic Surgery and Rehabilitation; Visual and Visual-Tactile Perception for Robotics. Part VII: Visual and Visual-Tactile Perception for Robotics; Perception, Interaction, and Control of Wearable Robots; Marine Robotics and Applications; Multi-Robot Systems for Real World Applications; Physical and Neurological Human-Robot Interaction. Part VIII: Physical and Neurological Human-Robot Interaction; Advanced Motion Control Technologies for Mobile Robots; Intelligent Inspection Robotics; Robotics in Sustainable Manufacturing for Carbon Neutrality; Innovative Design and Performance Evaluation of Robot Mechanisms. Part IX: Innovative Design and Performance Evaluation of Robot Mechanisms; Cutting-Edge Research in Robotics.

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