MATEJ BEL UNIVERSITY
IN BANSKÁ BYSTRICA

2. InterRehab

Rehabilitation conference

BELIANUM

2026

Main editor

Dr. Dávid Líška, PhD.

2. InterRehab – Rehabilitation conference

(27.03.2026)

BELIANUM

2026

Main editor

Dr. Dávid Líška, PhD.

https://orcid.org/0000-0002-5700-1341

Reviewers

Doc. Mgr. Ladislav Baťalík, PhD.

Dr. Daniel Gurín. PhD

27. 03. 2026, Banská Bystrica

Publisher: Belianum. Matej Bel University Press 2026

Cover design: Laura Pauhofová

ISBN 978-80-557-2334-1

EAN 9788055723341

https://doi.org/10.24040/2026.9788055723341

Scientific committee

prof. Dr. Matej Škorvánek, PhD.

prof. Dr. Martin Pupiš, PhD.

prof. assoc. prof. Dr. Magdaléna Hagovská, PhD.

assoc. prof. Dr. Bc. Beáta Frčová, PhD., MPH

assoc. prof. Ladislav Baťalík, PhD.

assoc. prof. Dr. Sebastian Rutkowski, Ph.D.

assoc. prof. Dr. Janka Kanásová, PhD.

assoc. prof. Dr. Pavol Pivovarniček, PhD

Dr. Barbara Mrazová, PhD., MD.

Dr. Andrea Strečanská, PhD.

Dr. Anna Rutkowska, Ph.D.

Dr. Daniel Gurín, Ph.D.

Dr. Mária Snitková, PhD.

Dr. Vladimír Franek, PhD.

Dr. Patrícia Shtin Baňárová, PhD.

Dr. Zuzana Frčová, PhD.

Dr. Denisa Ivaničová, PhD.

Content

Dear colleagues and friends of rehabilitation

It is my great pleasure and honor to warmly welcome you to this professional conference dedicated to contemporary perspectives in rehabilitation, physiotherapy, movement science, and interdisciplinary healthcare. We are truly delighted to gather with experts, clinicians, researchers, educators, and students who share a common commitment to improving health, function, participation, and quality of life through evidence-based rehabilitation practice. Your presence here reflects the growing importance of collaboration, innovation, and continuous professional development within our field.

This conference brings together a broad spectrum of topics that illustrate both the diversity and the evolving complexity of modern rehabilitation. Across today's program, we will explore musculoskeletal, neurological, behavioral, and preventive approaches to patient care, emphasizing not only treatment techniques but also clinical reasoning, long-term outcomes, and patient-centered strategies. The richness of these contributions demonstrates that rehabilitation is no longer viewed as an isolated intervention, but as an essential and integrated part of healthcare systems worldwide.

A significant part of the program focuses on musculoskeletal and sports rehabilitation. We will discuss demanding clinical conditions such as multiligamentous knee injury, where successful recovery depends on timely diagnosis, surgical decision-making, progressive rehabilitation, and multidisciplinary cooperation. We will also address post-injury loading strategies for the ankle, highlighting the importance of structured assessment, tissue response, movement control, and individualized return-to-activity planning. In addition, the topic of patellar tendinopathy will offer valuable insights into load management, tendon adaptation, overuse prevention, and evidence-based return-to-sport rehabilitation. These themes are highly relevant not only for athletes, but also for the wider physically active population.

Neurological rehabilitation forms another important pillar of this conference. Parkinson's disease, one of the most challenging progressive neurological disorders, will be discussed from multiple perspectives, including movement therapy, physiotherapy, gait training, balance management, fall prevention, and long-term functional independence. These presentations remind us that early intervention and sustained physical activity may profoundly influence autonomy and quality of life across all stages of the disease. We will also reflect on rehabilitation in multiple sclerosis, particularly the relationship between traditional therapeutic concepts and current evidence-based practice. Such discussions are essential because they encourage critical thinking, scientific rigor, and thoughtful integration of historical knowledge with contemporary research findings.

The program also includes innovative and specialized therapeutic approaches, including interventions for neurological disorders and novel concepts aimed at reducing spasticity and improving functional recovery. These contributions highlight the importance of maintaining openness to new methods while continuing to evaluate them through high-quality clinical research and measurable outcomes. Innovation in rehabilitation must always be accompanied by scientific responsibility and patient safety.

Equally important are topics addressing public health and long-term chronic care. The burden of back pain continues to rise globally, making screening tools, early identification, and culturally adapted outcome measures increasingly valuable in physiotherapy practice. Reliable assessment instruments not only improve treatment planning, but also strengthen communication between clinician and patient and support the measurement of therapeutic effectiveness. Furthermore, the inclusion of obesity management and psychological readiness for change reminds us that successful rehabilitation often depends on factors beyond biomechanics or exercise prescription alone. Motivation, self-efficacy, behavioral readiness, adherence, and sustainable lifestyle change are often decisive determinants of long-term success.

One of the strongest messages of today's conference is the necessity of interdisciplinary cooperation. Modern rehabilitation requires the combined expertise of physicians, physiotherapists, occupational therapists, psychologists, speech and language therapists, nurses, exercise specialists, researchers, and many other professionals. No single discipline can fully address the complexity of human function, disability, and recovery in isolation. By working together, sharing knowledge, and respecting complementary perspectives, we create better opportunities for patients to regain independence and participate fully in life.

This conference is not only a place for formal presentations, but also a platform for dialogue, networking, mentorship, and inspiration. Some of the most valuable ideas emerge not only from lectures, but from discussions during breaks, critical questions after presentations, and new professional relationships formed throughout the day. I encourage all participants to engage actively, exchange experiences openly, and use this opportunity to build future collaborations in clinical practice, education, and research.

I would like to sincerely thank all speakers for preparing their contributions and for sharing their expertise with us.

Multiligamentous knee injury (MLKI)

Líška D.[1]

[1]Faculty of Sport Science and Health, Matej Bel University, Slovakia

Abstract

Multiligamentous knee injury (MLKI) is a severe and complex condition characterized by damage to two or more major knee ligaments, most commonly resulting from high-energy trauma, traffic accidents, knee dislocations, or sports-related mechanisms involving rapid deceleration, rotational forces, or direct contact. These injuries are frequently associated with meniscal, chondral, capsular, neurovascular, and other soft tissue lesions, which significantly increase diagnostic and therapeutic complexity. In acute cases, prompt recognition is essential, as missed vascular compromise or peroneal nerve injury may lead to serious long-term consequences. Because of the relatively low incidence and marked heterogeneity of injury patterns, the optimal management of MLKI remains challenging and continues to be debated in contemporary literature. Early recognition and comprehensive clinical assessment are essential for successful treatment planning. A detailed history, mechanism of injury analysis, inspection for deformity or swelling, and systematic ligamentous examination are required. Imaging plays a central role in diagnosis, with standard radiographs used to identify fractures or joint alignment abnormalities, while magnetic resonance imaging provides detailed visualization of ligament, meniscal, cartilage, and capsular damage. In acute trauma settings, vascular screening and neurological examination are mandatory, particularly when knee dislocation is suspected. Rehabilitation after MLKI is a critical component of recovery and requires an individualized, criterion-based, and progressive approach. Early phases focus on pain and effusion control, protection of healing tissues, restoration of safe range of motion, muscle activation, and normalization of gait with appropriate weight-bearing progression. Later stages emphasize muscular strength, proprioception, neuromuscular control, dynamic stability, movement quality, and cardiovascular conditioning. Advanced rehabilitation should also include sport-specific or occupation-specific tasks when relevant. Due to the traumatic nature of the injury and long rehabilitation timeline, psychological factors such as fear of reinjury, confidence, motivation, and adherence should be regularly addressed. Recovery following MLKI is often prolonged, and despite successful stabilization, many patients do not regain their pre-injury level of sport or physical performance. Long-term complications may include residual laxity, joint stiffness, chronic pain, muscle weakness, altered movement mechanics, and post-traumatic osteoarthritis. Multiligamentous knee injury therefore represents one of the most

demanding conditions in orthopaedic and sports rehabilitation. Optimal outcomes depend on timely diagnosis, appropriate treatment selection, structured rehabilitation, close monitoring, and multidisciplinary cooperation among orthopaedic surgeons, physiotherapists, sports physicians, radiologists, and other healthcare professionals. Further high-quality prospective studies are needed to establish evidence-based treatment pathways, optimize rehabilitation protocols, and improve long-term functional outcomes and quality of life.

Keywords: Multiligamentous knee injury, rehabilitation, disability, rehabilitation

Post-injury loading strategy for the ankle

Kotrbancová M.[1]

[1]Rehabko, s.r.o., Žilina, McKenzie Institute, Slovakia

Abstract

Ankle injuries are among the most common musculoskeletal traumas and represent a significant risk factor for the development of chronic ankle instability and recurrent symptoms. Contemporary physiotherapy management following ankle injury should be grounded in the principles of evidence-based medicine and structured clinical reasoning. Mechanical Diagnosis and Therapy (MDT) provide a framework for identifying the mechanical source of symptoms, evaluating tissue response to repeated movements and loading, and individualizing the therapeutic approach.

Assessment of range of motion serves not only to quantify mobility restrictions but, more importantly, to evaluate mechanical behavior, directional preference, and symptom provocation or reduction. Muscle strength testing enables identification of functional deficits that affect the ankle's capacity to absorb and transfer load, while assessment of stability and movement control is essential for evaluating neuromuscular control and the risk of recurrent injury. Evidence indicates that a combination of targeted mobilization, progressive strengthening, and sensorimotor interventions leads to improved functional outcomes and a reduced risk of chronic instability.

A systematic MDT-based assessment and intervention allow physiotherapists not only to effectively address symptoms but also to target the underlying cause of functional impairment, promote patient self-management, and optimize return to daily and sports-related activities.

Keywords: Mechanical Diagnosis and Therapy (MDT), ankle injuries, range of motion and mechanical behavior, stability and movement control

Patellar tendinopathy

Strečanská A.[123]

[1] Faculty of Health Sciences, University of Ss. Cyril and Methodius in Trnava, Slovakia

[2] Slovak National Theatre – Ballet, Bratislava, Slovakia

[3] Slovak Chamber of Physiotherapists, Slovakia

Abstract

Patellar tendinopathy is among the most common overuse disorders affecting the knee extensor mechanism in athletic populations and represents a significant limitation to sports performance. It represents a tendon disorder that can evolve into a chronic condition, characterized by localized pain at the inferior pole of the patella that increases with mechanical loading of the knee extensors. Unlike inflammatory conditions, it reflects a maladaptive response of tendon tissue to repetitive tensile stress. The clinical course is often insidious, as pain may temporarily decrease during activity, leading to delayed diagnosis and progression of tendon pathology. Structural tendon abnormalities are frequently observed in asymptomatic individuals, indicating that pain development is primarily related to inappropriate loading patterns rather than structural changes alone. The primary pathophysiological mechanism involves excessive mechanical loading of the patellar tendon functioning as an elastic energy storage structure during jumping, deceleration, and rapid directional changes. Sudden increases in training volume or intensity, particularly during preseason periods or following training interruptions, represent the most significant triggers of symptom onset. The highest risk is observed in young male athletes engaged in jumping-based sports, including team sports and dance disciplines. A notable phenomenon is the so-called “jumper’s knee paradox,” whereby athletes with superior jumping capacity generate higher tendon forces and consequently exhibit an increased risk of developing tendinopathy. Major risk factors include abrupt changes in training load, restricted ankle dorsiflexion range of motion, rigid foot mechanics, reduced strength of the quadriceps, calf musculature, and gluteal muscles, as well as high levels of athletic participation. Diagnosis is primarily clinical and is based on precise pain localization and progressive tendon loading tests, particularly the decline squat, which allows assessment of tendon irritability and monitoring of rehabilitation progress. Differential diagnosis is essential to distinguish patellar tendinopathy from other causes of anterior knee pain such as patellofemoral pain syndrome, quadriceps tendinopathy, Hoffa’s fat pad impingement and bursitis. The cornerstone of treatment is progressive tendon loading through a staged rehabilitation approach incorporating isometric exercises for pain modulation, heavy slow resistance training to rest ore tendon

capacity, energy-storage loading activities, and sport-specific movement patterns. Preventive strategies emphasize rational load management, structured strength training, and early intervention at symptom onset.

Keywords: Patellar tendinopathy, overuse, biomechanics, loading, rehabilitation, pathology, assessment, prevention, progressive loading, tendon adaptation, return to sport

Movement and rehabilitation in Parkinson's disease

Škorvánek, M.[1]

[1]Department of Neurology, P. J. Safarik University, Kosice, Slovakia

Abstract

Parkinson's disease is a progressive neurodegenerative condition commonly linked with older adults, although advances in early recognition and greater awareness now allow treatment to begin sooner in the course of the disease. In addition to medication, rehabilitation and regular physical activity are fundamental parts of holistic management. Research suggests that well-designed exercise programs can enhance motor function, independence in daily activities, balance, walking ability, and overall quality of life, while also helping to reduce the rate of functional deterioration. The purpose of this conference paper is to present contemporary evidence-based strategies in movement therapy and rehabilitation for people living with Parkinson's disease, with a focus on their practical use in clinical settings. Main areas of intervention include cardiovascular fitness, muscle strength, postural stability, transfers, gait re-education, fall prevention, dual-task training, and upper extremity function. Particular emphasis is placed on cueing methods, task-oriented practice, amplitude-focused exercise, and personalized home-based programs that support long-term adherence. Successful rehabilitation depends on a thorough evaluation of both motor and non-motor manifestations of the disease, since fatigue, cognitive decline, depression, autonomic symptoms, and low motivation can substantially affect treatment outcomes. As disease progression and symptom profiles differ widely among individuals, individualized goal planning and continuous reassessment are essential. The best outcomes are achieved through interdisciplinary collaboration involving neurologists, physiotherapists, occupational therapists, speech and language therapists, psychologists, nurses, and other healthcare professionals. Starting targeted rehabilitation early and maintaining regular engagement in movement-based interventions may be crucial for preserving mobility, independence, social participation, and quality of life throughout every stage of Parkinson's disease.

Keywords: Parkinson's disease, rehabilitation, physiotherapy, exercise, movement therapy, gait, balance

Physiotherapy in Parkinson´s disease

Kopka A.[1]

[1]UNLP Košice KFBLR, Slovakia

Abstract

Parkinson's disease is no longer viewed solely as a condition of advanced age. With improvements in diagnostic criteria, neuroimaging, and greater awareness of early prodromal symptoms, more individuals are now diagnosed at earlier stages of the disease process. This shift is clinically significant, as it creates a valuable therapeutic window in which targeted interventions may slow functional decline, optimize independence, and support long-term participation in daily life. Early recognition also enables patients and families to better understand the condition, adapt lifestyle habits, and engage proactively in treatment strategies from the outset. Physiotherapy has become a cornerstone of modern Parkinson's disease management and is strongly supported by current scientific evidence. Rather than being limited to symptomatic care in later stages, physiotherapy should be introduced as early as possible and continued across the disease trajectory. Its role extends beyond movement training to include prevention of secondary complications, promotion of self-efficacy, and maintenance of social and occupational engagement. Regular, structured exercise has been shown to improve mobility, reduce disability, and positively influence both physical and psychological well-being. This presentation outlines physiotherapy approaches based on the European Physiotherapy Guideline for Parkinson's Disease, enriched by our own clinical experience and practical application. The intervention framework focuses on key domains that are essential for functional independence and quality of life: physical capacity, transfers, balance and fall prevention, gait performance, and manual dexterity. These domains represent the most common challenges affecting patients in everyday activities such as walking, rising from a chair, turning in bed, dressing, writing, and navigating community environments. Improving physical capacity is fundamental, as reduced endurance, muscle weakness, and inactivity often contribute to progressive deconditioning. Aerobic training, resistance exercise, flexibility programs, and task-specific functional training can significantly enhance overall fitness and resilience. In the early stages of Parkinson's disease, intensive physical activity appears to be one of the most important protective factors in preserving mobility, autonomy, and participation. Emerging evidence also suggests that regular high-intensity exercise may promote neuroplasticity and support more efficient motor control. Transfers are another critical area of intervention, particularly as bradykinesia, rigidity, and impaired coordination can make

bed mobility, sit-to-stand movements, and turning increasingly difficult. Through repetition, cueing strategies, environmental adaptation, and strength training, physiotherapists help patients perform these tasks more safely and efficiently while reducing dependence on caregivers. Balance impairment and falls remain among the most disabling consequences of Parkinson's disease. Postural instability may emerge gradually and is often worsened by dual-task demands, freezing episodes, and fear of falling. Evidence-based physiotherapy includes dynamic balance training, reactive stepping practice, sensory integration tasks, and education in fall prevention. Addressing confidence and movement anxiety is equally important, as fear itself can reduce activity levels and accelerate functional decline. Physiotherapy interventions use external cueing (visual, auditory, and tactile), treadmill training, rhythm-based strategies, and task-specific gait practice to improve walking efficiency and safety. Individualized gait retraining can substantially enhance community mobility and reduce participation restrictions. Targeted upper-limb exercises, coordination drills, bilateral movement training, and compensatory strategies can improve hand function and reduce frustration in daily routines. Comprehensive assessment and individualized goal setting are essential because the interaction of motor and non-motor symptoms makes every patient unique. Fatigue, pain, cognitive changes, depression, apathy, sleep disturbance, and autonomic dysfunction can all influence rehabilitation outcomes and should be considered during treatment planning. Person-centered care requires that goals reflect what is meaningful to the individual, whether maintaining employment, continuing hobbies, walking outdoors, or reducing fear of falling. Optimal management of Parkinson's disease requires a truly multidisciplinary approach. Effective collaboration between neurologists, rehabilitation physicians, nurses, physiotherapists, occupational therapists, speech and language therapists, psychologists, dietitians, and social workers ensures that care remains holistic and responsive to changing needs. When combined with patient education and long-term physical activity habits, physiotherapy can play a decisive role in helping people with Parkinson's disease remain active, independent, and engaged in life for as long as possible.

Keywords: European guideline for PD, multidisciplinary approach Parkinson's disease, physiotherapy

Are traditional concepts effective in the treatment of multiple sclerosis?

Zeman J.[1]

[1]Jaroslav Zeman fyzioterapie, Senovážné nám. 232/9, České Budějovice 6, 37001

Abstract

This lecture explores the development of rehabilitation approaches in multiple sclerosis (MS) and the gradual transition from traditional concept-based methods toward contemporary evidence-based and outcome-oriented practice. It first places traditional rehabilitation concepts within their historical and epistemological context, acknowledging their important contribution to the development of clinical reasoning, the understanding of postural control and motor organization, and the emphasis on the qualitative aspects of movement in neurological rehabilitation. Many of these approaches emerged in a period when systematic clinical research was limited and therapeutic decision-making was largely guided by expert authority, clinical observation, and accumulated professional experience.

While these traditional frameworks have significantly influenced clinical practice and education in neurorehabilitation, it is also necessary to critically reflect on the conditions under which they were developed. The lecture therefore addresses the broader historical context of so-called *eminence-based medicine*, in which the authority of respected clinicians and teachers played a central role in shaping therapeutic recommendations. In the absence of rigorous experimental designs, systematic outcome measurements, and large-scale controlled studies, interpretations of therapeutic effectiveness were often based on clinical impressions, case reports, or uncontrolled observations.

Particular attention is devoted to methodological issues that complicate the evaluation of rehabilitation interventions. These include the impact of publication bias, the Hawthorne effect, and the frequent absence of truly comparable control groups in early rehabilitation studies. Furthermore, the discussion situates these challenges within the broader context of the contemporary replication crisis in biomedical and behavioral sciences, which has prompted renewed reflection on research design, transparency, and reproducibility across many clinical disciplines.

The lecture subsequently summarizes findings from contemporary rehabilitation research in multiple sclerosis. Current evidence suggests that therapeutic effectiveness is more consistently associated with factors such as treatment dosage, regularity of intervention, task specificity, functional relevance, and individualization of therapy rather than with the exclusive application of a particular therapeutic concept. Structured exercise programs incorporating strength

training, aerobic conditioning, balance training, and task-oriented motor practice have demonstrated meaningful benefits for mobility, fatigue management, and overall functional capacity in individuals with MS.

In its concluding part, the lecture proposes an integrative perspective that seeks to move beyond the dichotomy between “traditional” and “modern” approaches. Within this framework, traditional rehabilitation concepts may still play a valuable role as clinical tools supporting movement quality, postural organization, and therapeutic facilitation. However, their use should be embedded within a broader rehabilitation strategy characterized by clearly defined goals, measurable outcomes, individualized dosing, and long-term sustainability of therapeutic interventions. Such an approach reflects the evolving integration of historical clinical knowledge with contemporary scientific evidence in neurological rehabilitation.

Keywords: rehabilitation, sclerosis multiplex, exercise

Pain screening tool

Snitková M.[1]

[1]Department of Common disciplines, Faculty of Healthcare in Banská Bystrica, Slovak Medical University in Bratislava Limbová 12, 833 03 Bratislava, Slovakia

Abstract

The World Health Organization has identified back pain as a "modern epidemic" due to its increasing prevalence; it is estimated that by 2050, approximately 843 million people worldwide will be affected by this condition. Back pain represents one of the most common reasons for medical consultations and constitutes a leading cause of disability globally.

The burden of the condition is continuously rising due to multiple risk factors, including smoking, overweight and obesity, gender-related differences, occupational workload, and, most importantly, degenerative changes in the locomotor system associated with ageing. Chronic pain episodes significantly impair patients' quality of daily life, negatively affect mental well-being, and contribute to an increased economic burden on individuals, their families, and healthcare systems worldwide.

Back pain represents a condition that can be effectively managed through physiotherapeutic interventions. Early intervention is associated with improved patient prognosis and may prevent the progression to chronicity. One of the screening tools frequently used in physiotherapy practice is the Örebro Musculoskeletal Pain Screening Questionnaire. This instrument belongs to the category of Patient-Reported Outcome Measures (PROMs) and contributes to the quality of healthcare as perceived by patients. Its benefits include facilitating the evaluation of treatment outcomes, managing patient expectations - particularly in complex cases where full recovery is unlikely - and enabling international comparison of treatment results. The increasing use of questionnaires in clinical practice necessitates standardized translation procedures. Such instruments should be translated in a consistent and methodologically rigorous manner, in accordance with the guidelines established. The translation of the Örebro Musculoskeletal Pain Screening Questionnaire followed the methodology proposed by David E. Beaton and colleagues. This process included the formation of an expert committee, dual forward translation, synthesis of a pre-final version, back translation, and subsequent review of all comments, resulting in the approval of a final translated version suitable for pilot testing. The pilot testing involved 52 participants who completed the questionnaire twice, with a 48-hour interval between administrations to minimize the potential influence of therapeutic interventions on the results.

Test–retest reliability analysis demonstrated high measurement stability, with a Pearson correlation coefficient of 0.905 and internal consistency indicated by a Cronbach's alpha of 0.950. The Slovak version of the Örebro Musculoskeletal Pain Screening Questionnaire has been statistically validated as a reliable instrument measuring constructs equivalent to those of the original version. Owing to its practical benefits—such as supporting the development of patient–physiotherapist trust, enhancing adherence to treatment, and enabling the evaluation of treatment efficacy—this questionnaire can be considered a valuable tool and is strongly recommended for routine use in physiotherapy practice.

Keywords: OREBRO, cross-cultural adaptation to Slovak language, PROMs, OREBRO Slovak version

Funding

The project was supported by an internal grant from the Slovak Medical University „Validácia slovenskej verzie dotazníka OREBRO slúžiacej na budúce výskumy bolesti pohybového aparátu " under number 12/2025-SVG"

APPP - more effective method of rehabilitation of neurological disorders

Kučera M.[1]

[1]Kphysio s.r.o., Banská Bystrica, Slovakia

Abstract

APPP - autoreflex prenatal and postnatal therapeutic positions is a concept used in rehabilitation and physiotherapy. It represents methodology for treating not only functional disorders but also movement disorders related to damage to the central and peripheral nervous system. The concept, developed by physiotherapist Ľubica Košinová, works with the activation of the patient in prenatal and postnatal positions, during which there is a reflex activation of the muscles from the center of the body to the acre. The concept points to the importance of prenatal development of the fetus, whose ultimate goal is birth, and postnatal development, ending with bipedal walking. The presentation presents patients after stroke, transverse spinal cord injury and polytrauma with an emphasis on the effect of APPP on their condition. It also points to the reflex activation of movement in a patient with lower limbs plegia through the activation of acupressure points. At the end of the presentation research focused on the impact of APPP on spasticity in patients after stroke is presented. 46 participants after stroke with spastic hemiparesis participated in the clinical study. The average age of the patients was 62.6 +- 12.77 years. They were divided into two groups. The rehabilitation of the experimental group consisted of APPP + traditional kinesiotherapy focused on stretching, repetitive functional training and strengthening. The control group received only traditional kinesiotherapy as part of rehabilitation. The study was carried out for three weeks, the subjects underwent physiotherapy three times per week for three weeks. The level of spasticity was measured by the modified Ashworth scale. In the experimental group, muscle tone was significantly reduced compared to the control group. APPP can contributes to the reduction of spasticity in patients after stroke but randomized controlled study are needed for confirm benefit.

Keywords: APPP, movement program, spasticity, MAS

Psychological readiness for change as a determinant of long-term outcomes in physiotherapy-led obesity management

Konrády, P.[1]

[1]Biomedical Research Center of the Slovak Academy of Sciences (BMC SAV), Slovakia

Abstract

Obesity represents a complex chronic disease with multifactorial etiology, high relapse rates, and substantial clinical as well as socioeconomic burden. Despite the implementation of evidence-based exercise interventions, structured lifestyle programs, and multidisciplinary treatment models, long-term adherence to behavioral change remains limited in a considerable proportion of patients. Contemporary clinical practice frequently emphasizes intervention quality, exercise prescription, and technical program design, while often underestimating psychological determinants that influence sustainability of outcomes.

This presentation focuses on psychological readiness for change as a key determinant of treatment effectiveness in physiotherapy-led obesity management. The concept is grounded in established frameworks of behavioral medicine, particularly the Transtheoretical Model of Change, Self-Determination Theory, and principles of motivational interviewing. Readiness is conceptualized as a multidimensional construct involving cognitive appraisal, emotional regulation, self-efficacy, perceived competence, and the degree of autonomous motivation. It is proposed that treatment outcomes are not determined solely by the biomechanical or metabolic appropriateness of an exercise intervention, but are substantially moderated by the patient's stage-specific psychological preparedness to initiate and maintain change. Failure to consider this factor may contribute to premature dropout, reduced adherence, recurrent relapse, and frustration among healthcare professionals. Systematic integration of readiness assessment into physiotherapeutic clinical reasoning may support individualized treatment planning, improve patient engagement, optimize allocation of healthcare resources, and enhance long-term outcomes in obesity management.

Keywords: obesity management; physiotherapy; readiness for change; behavioral medicine; self-determination theory; treatment adherence

Prehabilitation in patients with colorectal carcinoma

Mrazová, B.[1]

[1]F.D. Roosevelt Teaching Hospital, Banská Bystrica, Slovakia

Abstract

Colorectal carcinoma is among the most common oncological diseases worldwide and is frequently associated with reduced physical fitness, decreased functional capacity, malnutrition, fatigue, and impaired quality of life. Surgical treatment remains the primary therapeutic approach, however postoperative complications and prolonged recovery continue to represent significant clinical challenges. In recent years, prehabilitation has emerged as an important multidisciplinary strategy aimed at optimizing the patient's physical and psychological condition before surgery in order to improve postoperative outcomes and accelerate recovery. The aim of this study was to evaluate the role of prehabilitation in patients with colorectal carcinoma, with a particular focus on physical function, exercise tolerance, postoperative recovery, and overall functional status. The prehabilitation program consisted of individualized interventions including aerobic and resistance exercise training, respiratory physiotherapy, nutritional optimization, and psychological support. Functional assessment is performed using standardized measures of physical performance, mobility, muscular strength, and cardiorespiratory fitness. Prehabilitation may positively influence functional capacity and perioperative outcomes in patients with colorectal carcinoma. Patients participating in structured prehabilitation programs demonstrated improvements in physical fitness, exercise tolerance, respiratory function, and muscular performance prior to surgery. Prehabilitation represents a promising and clinically relevant approach in the management of patients with colorectal carcinoma. Early implementation of targeted exercise therapy, nutritional support, and multidisciplinary rehabilitation may improve surgical resilience and functional recovery while reducing the negative consequences associated with oncological treatment. Further studies are required to determine the optimal duration, intensity, and composition of prehabilitation programs in colorectal cancer care.

Keywords: colorectal carcinoma, prehabilitation, rehabilitation, physical function, postoperative recovery

Assessment of physiological and movement parameters in students of health sciences

Sekereš, M.[1], Hrubala M.[1], Snitková M[1]. Frčová B.[1]

[1]Slovak Medical University, Faculty of HealthCare in Banská Bystrica, Slovakia

Abstract

The study focused on the evaluation of physiological and movement parameters in students of the Faculty of HealthCare of the Slovak Medical University in Banská Bystrica. The sample consisted of 128 college students from four study programs (nursing, physiotherapy, emergency healthcare, and laboratory diagnostic methods), including 75% women and 25% men. Mobility assessed by the Thomayer test demonstrated overall very good flexibility, with more than 83% of respondents achieving an excellent rating, while no statistically significant differences were observed between men and women. In the speed and explosiveness test (vertical jump), men achieved significantly better results than women; their average performance fell within the average range, whereas women were predominantly classified within the below-average range. Elite performance was not recorded in any respondent. The CO_2 tolerance test indicated predominantly average breath-control ability (64%), while approximately 36% of respondents demonstrated poor tolerance; no good or excellent tolerance levels were identified. When categorized by sex, no significant differences were found in mobility or CO_2 tolerance, whereas a significant difference was confirmed only in the explosiveness test in favor of men. Correlation analysis suggested an indirect relationship between flexibility and explosiveness in men (greater flexibility was associated with better performance), while in women a negative relationship was confirmed between BMI and both explosiveness and CO_2 tolerance. Age did not demonstrate a significant influence on most monitored parameters, except for better explosiveness performance in older men. In comparisons among study programs, physiotherapy students achieved the best overall results, demonstrating statistically significantly better flexibility, greater explosiveness, and superior CO_2 tolerance compared with students from the other programs. Overall, it can be concluded that the student cohort demonstrated a good level of mobility and normal BMI values; however, deficiencies were identified mainly in explosiveness among women and in CO_2 tolerance across the entire sample.

Keywords: physiological parameters, movement parameters, flexibility, explosiveness, CO_2 tolerance

Funding

The project was supported by an internal grant from the Slovak Medical University „Analýza

zdravia, životného štýlu a metakognitívnych stratégií študentov zdravotníckych odborov č. 10/2024-SVG 1“

Rehabilitation using electromyostimulation in frail patients with liver cirrhosis

Líška D.[1]

[1]Faculty of Sport Science, Matej Bel University, Slovakia

Abstract

Liver cirrhosis represents one of the most serious chronic liver diseases associated with progressive deterioration of physical function, reduced quality of life, and increased mortality. Frailty syndrome, characterized by decreased muscle strength, impaired mobility, reduced exercise tolerance, and sarcopenia, is highly prevalent in patients with liver cirrhosis and significantly worsens clinical outcomes. In recent years, rehabilitation interventions have become an important component of comprehensive management in patients with chronic liver disease. Among modern rehabilitation approaches, electromyostimulation (EMS) has gained increasing attention due to its potential to improve neuromuscular activation, muscle strength, and functional performance, particularly in patients with limited tolerance for conventional exercise training. The aim of this study was to evaluate the effect of rehabilitation using electromyostimulation on frailty parameters in patients with liver cirrhosis. The study focused on changes in physical performance, muscle function, mobility, and selected functional indicators associated with frailty syndrome. The intervention program consisted of a structured rehabilitation protocol combined with electromyostimulation applied to major muscle groups of the lower extremities and trunk. Functional assessment included standardized frailty-related parameters such as muscle strength, mobility, exercise tolerance, and physical performance tests. Anthropometric and clinical variables were also monitored to determine the relationship between frailty severity and rehabilitation outcomes. The results demonstrated that rehabilitation using electromyostimulation may positively influence functional status in frail patients with liver cirrhosis. Electromyostimulation appeared to be particularly beneficial in individuals with reduced exercise capacity and severe physical deconditioning, where conventional exercise programs are often difficult to tolerate. Improvements were also observed in parameters associated with sarcopenia and reduced muscular endurance, suggesting that EMS may contribute to the prevention of further functional decline in this population. The findings indicate that electromyostimulation-based rehabilitation could represent a safe and effective supportive therapeutic strategy for frailty management in patients with liver cirrhosis. Incorporating EMS into multidisciplinary rehabilitation programs may improve physical function, increase exercise tolerance, and enhance overall quality of life. Further research with larger sample sizes and long-term follow-up is necessary to establish optimal intervention

protocols and confirm the long-term clinical benefits of electromyostimulation in hepatology rehabilitation.

Keywords: liver cirrhosis, frailty, electromyostimulation, rehabilitation, sarcopenia

Funding

Funded by the EU NextGenerationEU through the Recovery and Resilience Plan for Slovakia under the project No. 09I03-03-V05-00009“.

2. InterRehab – Rehabilitation conference

27. 03. 2026, Banská Bystrica

Collection of abstracts

Main editor

Dr. Dávid Líška, PhD.

Reviewers

Assoc. prof. Ladislav Baťalík, PhD.

Dr. Daniel Gurín, PhD.

Online version

Page rang 28

First edition

Published by Belianum. Matej Bel University Press

Banská Bystrica, 2026

ISBN 978-80-557-2334-1

EAN 9788055723341

https://doi.org/10.24040/2026.9788055723341

ISBN 978-80-557-2334-1