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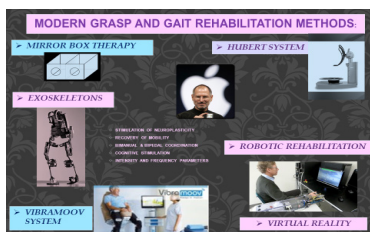
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**GAIT NEUROREHABILITATION: ALGORITHMS FOR GAIT RECOVERY  
IN NEUROLOGICAL AND NEUROSURGICAL CLINICAL PRACTICE**

Neurorehabilitation (NR) is an interdisciplinary thematic field between neurology, neurosurgery, physical and rehabilitation medicine. According the world disability report, Rehabilitation is a functional therapy, based on a detailed functional assessment. Gait is an important element of the everyday life functionality of NR-patients and is crucial for their independence in activities of daily living, respectively for their autonomy. For functional evaluation in NR we applied clinical and instrumental assessment methods, specific neurological scales and the international classification of functioning (ICF). For treatment, we used the "rehabilitation puzzle"-a synergic combination of different physical factors (natural and pre-formed). Our purpose was to emphasize the potential of some contemporary physical modalities for balance training and gait recovery, based on best practices and evidence-based research. Special attention was paid to: functional electrical stimulations (with low and middle frequency electric currents); deep oscillation; manual therapy techniques (tractions, mobilizations, manipulations); proprioceptive neuro-muscular facilitation (PNF) methods; analytic exercises, device-assisted mechano-therapy, mirror therapy, etc. We insist on the importance of technical aids (wheelchairs, walkers, rollators, canes, walking sticks) and environment adaptations (home and labour reworking). Future possibilities are cited, including potential of exoskeletons, robotic rehabilitation, and virtual reality. We explain some principles of balance and gait rehabilitation, dues to our modest clinical experience (of 30+ years) and our own results in typical and atypical clinical cases. We propose gait NR-algorithms for patients with CNS or PNS conditions: post stroke hemiparesis, multiple sclerosis, Parkinsonism, traumatic brain injury (TBI), after neurosurgical interventions for brain tumours or ruptured cerebral aneurysm, spinal cord injuries (SCI) with paraplegia, lumbosacral radiculopathy and diabetic polyneuropathy (DPNP) with femoral, peroneal or/and tibial paresis, radiculopathies and peripheral paresis after neurosurgical intervention (for spinal trauma and discal hernia). We obtained significant functional recovery in patients with spastic hemiparetic and paraparetic gait, festinating gait, ataxia, step page.



**Biography**

Ivet B Koleva is a Medical Doctor, Specialist in Physical and Rehabilitation Medicine /PRM/ and in Neurology, with European certification in PRM. She defended two theses (Philosophy Doctor and Doctor in Medical Sciences) in the field of Neurorehabilitation. Her scientific interests are in the field of neurorehabilitation, grasp and gait rehabilitation; pain and physical analgesia; functional assessment, etc. She is the Professor at the Medical University of Sofia, Bulgaria.

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