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Motor and Sensory Recovery through Early Physical Therapy in GBS

Ansell Goodwin*

Department of Physiotherapy or Neurophysiotherapy, University of Cape Town, Cape Town, South Africa

Introduction

Guillain-Barré Syndrome (GBS) is a rapidly progressive neurological disorder characterized by symmetrical limb weakness, sensory deficits and diminished or absent reflexes. It is considered a medical emergency due to its potential to cause respiratory paralysis and life-threatening autonomic dysfunction. While immunomodulatory treatments such as intravenous immunoglobulin (IVIG) or plasmapheresis are effective in arresting disease progression, rehabilitation remains essential for promoting motor and sensory recovery. Early physical therapy, initiated during the acute hospitalization phase or immediately post-stabilization, is a cornerstone of the recovery process. Research shows that early intervention can prevent disuse atrophy, promote neuroplasticity and support faster regaining of functional independence. Motor rehabilitation initially focuses on passive range of motion exercises to prevent contractures and maintain joint flexibility. As strength begins to return, active-assisted and eventually resistive movements are introduced to rebuild muscle strength and endurance. Physical therapists must take a patient-specific approach, carefully monitoring for fatigue and overexertion, which can impair recovery [1].

Description

The principle of "activity pacing" is often applied, balancing rest and effort to avoid post-exertional malaise. Sensory retraining, though less emphasized historically, is now recognized as a vital component, targeting paresthesia, proprioceptive deficits and altered tactile perception. This dual-focus approach ensures that both motor and sensory pathways are re-engaged early, improving overall functional outcomes. Collaboration between the ICU team and rehabilitation specialists is crucial to initiate therapy safely, especially in cases with respiratory involvement. The goal is not only to restore physical capability but also to preserve dignity and hope during the most vulnerable stages of illness [2].

Motor recovery in GBS is a multifaceted process, often extending over several months and requiring structured, progressively challenging physical therapy. After the acute demyelinating or axonal insult stabilizes, the body begins to remyelinate nerves and regenerate axons at a slow but steady pace. This biological recovery is enhanced by movement-based therapies that promote cortical reorganization and neuromuscular reactivation. Task-specific training, such as sit-to-stand practice, gait re-education and step climbing, are core components of motor retraining. These activities are often supported by tools such as walkers, orthoses and parallel bars, which provide stability and safety. Advanced techniques like robotic-assisted gait training and Functional Electrical Stimulation (FES) can also accelerate walking recovery in more severely affected patients. The timing and intensity of these interventions are critical. Early mobilization even in bed-bound patients has shown benefits in maintaining circulation, preventing deconditioning and stimulating neuroplastic responses. Strength recovery typically follows a distal-to-proximal gradient, though variability exists depending on GBS subtype. In the axonal variants, for example, motor recovery may be more prolonged and incomplete, requiring persistent therapeutic support. Therapists must also monitor for asymmetries in strength or movement quality, as these can result in compensatory patterns that compromise long-term biomechanics. Coordination and balance training are essential in the subacute phase, when patients begin ambulating with assistance. Incorporating dual-tasking and dynamic surface training can enhance motor adaptability and reduce fall risk. Patient engagement is critical and therapists often use motivational interviewing and goal-setting strategies to foster participation and build confidence. Measurable progress, even small, reinforces commitment and provides psychological momentum during recovery [3-4].

The long-term benefits of early physical therapy in GBS extend beyond immediate mobility gains, influencing psychosocial well-being, quality of life and overall healthcare outcomes. Early engagement in therapy promotes autonomy, reduces hospitalization time and lowers the risk of secondary complications such as joint stiffness, muscle contractures, pressure injuries and deep vein thrombosis. Furthermore, patients who begin therapy early are more likely to achieve better long-term outcomes on standardized scales such as the GBS Disability Scale and the Barthel Index. Importantly, the early therapy window provides a platform for therapeutic alliance and trust-building, which are foundational for rehabilitation adherence. Education about the expected course of recovery, energy management, assistive devices and home modifications can be introduced early, empowering patients and caregivers. Family involvement is especially crucial at this stage, as caregivers often become instrumental in supporting exercise regimens and ensuring safety [5].

Conclusion

Rehabilitation in GBS must also include psychological support, as anxiety and depression are common during the early recovery period due to fear of permanence, loss of control and sudden dependency. A holistic early rehabilitation program should therefore include emotional counseling or psychosocial screening. Telerehabilitation options, particularly in post-discharge care, are expanding access to early therapy for patients in remote areas or with limited mobility. Wearable devices that track physical activity and fatigue can provide valuable feedback for therapy planning. Finally, early therapy lays the foundation for community reintegration returning to work, school, or recreational activities which marks the true end point of rehabilitation. In conclusion, early physical therapy is a powerful and necessary intervention in the GBS recovery continuum, with far-reaching benefits that touch every domain of healing: motor, sensory, emotional and social.

***Address for Correspondence:** Ansell Goodwin, Department of Physiotherapy or Neurophysiotherapy, University of Cape Town, Cape Town, South Africa, E-mail: Goodwin.ansell@capetown.edu*

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Conflict of Interest

None.

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