



The role of gut microbiome in neurorehabilitation: a new frontier for stroke recovery

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I am writing to highlight the emerging research on the role of the gut microbiome in neurorehabilitation, particularly in the context of stroke recovery. This gut-brain connection study will show neuroplasticity, inflammation and the general neurological health of the person are affected by it.¹

Progress of the gut microbiome in strokes may be a relatively new approach and may offer a rethink to the treatment of neuroplasticity in stroke patients as well as the necessity of physical therapy.² Recent studies highlight the critical role of gut microbiota in regulating neurotransmitters, such as N-ethanolamine, serotonin, and gamma-aminobutyric acid (GABA). Additionally, short-chain fatty acids (SCFAs) produced by these microbes possess strong anti-inflammatory effects and play a vital role in neural regeneration.³ After a stroke, these processes become even more critical as inflammation increases and neuroplasticity is vital for recovery. Modulating the gut microbiota may reduce post-stroke inflammation, enhance neurogenesis, and support motor and cognitive rehabilitation. This makes it clear that targeting the gut microbiome is paramount for the enhancement of stroke recovery.⁴ Besides imbalanced gut bacteria, due to poor diet or antibiotics treatment after a stroke, can slow down the healing processes by maintaining constant inflammation and disallowing brain changes and

adaptations.⁵

Introducing personalized interventions, such as probiotics, prebiotics, or dietary changes, targeting the gut microbiome could become a vital part of post-stroke rehabilitation programs. These approaches may enhance neuroplasticity and functional recovery by reducing neuro inflammation and promoting a healthier gut-brain axis.⁶ Physical therapists play a key role in stroke rehabilitation. Including gut health assessments and microbiome-based interventions can boost the benefits of exercise therapies. This approach supports neuroplasticity, reduces inflammation, and enhances recovery outcomes for stroke survivors. I urge the scientific community to further explore the role of the gut microbiome in neurorehabilitation, with a focus on its integration into physical therapy protocols for stroke recovery.

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CONFLICT OF INTEREST

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