CLINICAL CASE STUDY · THAILAND COHORT · CASE 3

Comparative Analysis of Engagement, Environment, and Outcome in Neuromuscular Rehabilitation

Thailand · Stimel-03

Comparison Snapshot

Dimension	Patient A	Patient B
Profile	52-year-old male	61-year-old male
Sessions (Stimel-03)	8 sessions, ~1 month	8 sessions
Engagement	Sustained throughout	Declining late in course
Caregiver context	Proactive, supportive, repeated home practice	Verbal pressure during therapy
Outcome	Functional motor and endurance improvement	Therapy discontinued after loss of cooperation

Introduction

Clinical rehabilitation often appears protocol-driven on paper, but outcomes are produced in lived systems involving devices, therapists, patients, and families. Similar treatment exposure does not guarantee similar outcomes. Stroke rehabilitation literature increasingly emphasizes that dose, repetition, meaningful activity, and adherence are central to recovery — yet motivation, emotional state, and social context influence whether patients are able or willing to sustain those inputs.

The present comparison contrasts 2 rehabilitation trajectories under the same device platform and the same nominal session count. One reflects continued participation within a highly supportive environment and is associated with measurable improvement. The other reflects behavioral withdrawal, reduced cooperation, and termination of therapy after a disruption in the interpersonal context. These contrasting trajectories help clarify that rehabilitation is shaped by more than the technology alone.

Case Comparison

Patient A was a 52-year-old male with a left-sided stroke in 2020 and a second stroke affecting the right side in October 2025, resulting in bilateral paralysis. At the start of treatment in March 2026, he could not voluntarily open or close the hand on the selected treatment side, and wrist movement was absent. He completed 8 sessions over ~1 month, twice weekly, while also participating in repeated movement activity outside sessions with extensive family support. By the end of the treatment period, he could open and close the hand, lift the wrist, and demonstrate slight extension and retraction. Session tolerance increased from ~20 minutes to ~45 minutes.

Patient B was a 61-year-old male undergoing neuromuscular rehabilitation. Detailed baseline motor findings were not provided. He also completed 8 sessions using Stimel-03. During the sixth session, a family member verbally pressured him to increase effort. After that point, the patient demonstrated reduced cooperation; in the final 2 sessions, he did not respond when asked to attempt movement. The family then requested discontinuation of therapy because the patient was not cooperating and they were concerned about using clinical time.

Key Comparative Dimensions

First, continuity of engagement differed substantially. Patient A remained participatory throughout the treatment period, whereas Patient

B demonstrated declining responsiveness late in the course.

Second, the home rehabilitation environment differed. Patient A received repeated caregiver-supported activity outside sessions, including assisted movement and external hand exercise practice. For Patient B, no comparable structured external practice was reported.

Third, family involvement appeared qualitatively different. In Patient A, family activity was described as proactive and supportive. In Patient B, a moment of verbal pressure during therapy preceded behavioral decline.

Fourth, measurable outcome differed. Patient A demonstrated observable functional improvement and improved endurance. Patient B demonstrated treatment discontinuation after loss of cooperation.

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Discussion

The comparison supports a broader systems view of rehabilitation. Device exposure may be necessary, but it is rarely sufficient by itself. Recovery often depends on whether treatment is embedded within a context that supports repetition, confidence, effort, and sustained participation. In Patient A, the rehabilitation environment appears to have amplified treatment exposure through repeated external activity, family support, and strong patient motivation. In Patient B, participation appears to have weakened after an interpersonal event during treatment, ultimately leading to dropout.

This contrast aligns with current rehabilitation concepts. Task-oriented and repetitive practice are widely supported in stroke recovery literature, but their benefit depends on the patient actually engaging in the attempts. Likewise, caregiver involvement is often beneficial, but its effect depends on how it is expressed: supportive caregiving may increase exposure and adherence, while poorly timed pressure may undermine participation.

The comparison also highlights an operational issue for real-world deployment. Programs that use stimulation technology in home-adjacent or distributor-led settings may need explicit protocols not only for treatment delivery, but also for caregiver communication and early detection of disengagement. If patient responsiveness declines, the system should not interpret that only as a compliance issue — it may represent a clinically meaningful warning sign that the therapeutic environment needs adjustment.

These cases cannot establish causality, and the comparison has substantial limitations. The patients were not matched by diagnosis severity, chronicity, cognition, or baseline function. Standardized scales were unavailable. The role of spontaneous recovery, especially in the more recent stroke case, cannot be excluded. Even so, the comparison remains valuable because it captures clinically important real-world variables that are often underrepresented in device-focused reports.

Conclusion

These 2 cases illustrate that similar treatment exposure with Stimel-03 can be associated with very different clinical trajectories. In one case, recovery occurred in the presence of sustained participation, caregiver support, and continued activity outside sessions. In the other, participation declined after a disruptive family interaction and therapy was discontinued. The comparison suggests that engagement, family dynamics, and rehabilitation environment may materially shape outcome alongside the technical treatment itself.

Case Video

Watch the case video: link

> *Stimel-03 by Motion Informatics — clinical-grade neuromuscular rehabilitation in a portable, patient-friendly device.*