

The Impact of the Innowalk Pro on Patient Orientated Goals

Hyperacute Neurorehabilitation - Case Study

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Introduction
The Innowalk Pro 1 (Made for Movement), an innovative robotic dynamic standing device enabling cycling movements in a weight bearing position, comparable to walking (1). Research focuses on Cerebral Palsy, showing improvements in quality of life, & physical & mental health (2,3,4).

Background
56-year-old male with a history of extensive left hemisphere intracranial haemorrhage. Initial admission to hyper-acute neurorehabilitation, ward C2, 6 weeks post admission (& post-operatively). Return to ICU in status epilepticus 8 weeks later. Readmitted to hyper-acute neurorehabilitation following 10 days ICU admission.

IMPAIRMENTS
Right sided weakness and atrophy
Spasticity
Pain and hypersensitivity
Sensory and visual neglect
Cognitive deficits

Impacting → **ACTIVITY AND PARTICIPATION**
Unable to maintain sitting balance
Not tolerating use of tilt table
Poor tolerance of handling
Hoist transfer
Lack of engagement

Pusher syndrome

Patient Goals → **To stand** : **To walk** : **To play board/card games with family**

12 weeks following initial admission to ward C2: **NOT ACHIEVING GOALS** – Minimal improvement in impairment and activity-based outcomes. Team and family agreed to introduce the Innowalk following BIM.



Aim
To evaluate the impact of the Innowalk on achievement of functional and impairment-based outcome measures, and attainment of patient orientated goals.



Results

Goal	Start Point	Outcome
To consistently tolerate 30-minute therapy sessions	Intermittently engaging in 10-minute therapy sessions. Often refusing	Consistently engaging in 60-minute therapy sessions. Enjoyment 12/10
To reduce pain from 10/10 to 5/10 NRS	10/10 NRS (Numeric Rating Scale)	2/10 NRS
To sequence grooming task, sitting in supportive seating with verbal & tactile cues only	Required assistance of 1 to complete grooming task	Able to complete grooming task in supportive seating with verbal cueing only
To achieve full therapeutic stand with assistance of 3 and maintain for 1 minute	Unable to stand, required tilt table	Achieved Bipedal stance with assistance of 2-3 for 3 minutes adding weight transference work
Increase passive range of motion at Right knee by 10 degrees	Range of motion Right knee: 120/20/0	Range of motion Right knee: 120/10/0
To be able to sit in supportive seating and play one board or card game with family daily	Inconsistently attempting to play games, agitation & mood impacting	Able to sit in supportive seating and play several board and card games daily with family
To be able to transfer using sara stedy with assistance of 3 in therapy	Hoist transfer with assistance of 2	Able to transfer using sara stedy with assistance of 2 in therapy
Increase power in Right hip and knee from 1/5 & 0/5 respectively to 2/5 MRC	Power Right hip 1/5 MRC (Medical Research Council) Power Right knee 0/5 MRC	Power Right hip 3/5 MRS Power Right knee 3/5 MRS
Long term patient goal: To be able to walk	Unable	Mobilised on Body de-weighting system with AFO Right and facilitation to step



Conclusion
After a period with minimal physical improvement, poor engagement, and nil goal attainment. Two of three patient driven goals were achieved when the Innowalk was utilised as the main component of the rehabilitation programme. Additionally, the increased intensity of rehabilitation supported maintaining a stable chest post tracheostomy decannulation, one month earlier.

Impact
Consider the use of robotics as part of a rehabilitation programme to achieve patient goals at a faster pace than traditional rehabilitation alone. Weight bearing can be sustained for longer periods with the addition of increased intensity and frequency of therapy which may positively impact other aspects of rehabilitation. Further research is indicated reviewing the impact of the Innowalk on hemiparesis/hemiplegia secondary to brain injury.