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Efficacy for use of Innowalk Pro in Hyperacute Neurorehabilitation Setting Single Patient Case Study

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Introduction:

- Nineteen-year-old male, history of autism and restrictive eating. Admitted July 2021 due to vomiting and required abdominal surgery. Post-operatively developed neurological symptoms, with septic shock resulting in cardiac arrest. MRI scan: toxic (metabolic) and ischaemic encephalopathy – hypoxic brain injury.
- 8 weeks post-cardiac arrest admitted to hyperacute neurorehabilitation (Ward C2, Salford Royal Hospital, Northern Care Alliance) and rehabilitation commenced

Impairments on Admission	Impact
◆ Altered sensory perception (hypersensitive) ◆ Visual impairment (almost full visual loss)	◆ Pain: High levels of distress and anxiety with handling of legs and feet ◆ Maximum of 10-15 minutes of therapy tolerated
◆ Dystonia in all limbs, significantly worse in legs ◆ Significant loss of joint range in lower limbs bilaterally- - hips (flexion / extension): 120-40-0 - knees (flexion / extension): 140-70-0	◆ Unable to alter foetal positioning in bed, intolerant of right side lying, high pressure risk ◆ Hoist transfer assistance of 3 ◆ Maximum of 15 minutes tolerated in bespoke hired seating ◆ Personal cares taking over 1 hour by two members of staff
◆ Hyperkinetic movements in upper and lower body and limbs	◆ Difficulty maintaining positioning strategies
◆ Cognitive impairments: reduced concentration and attention	◆ Exacerbation of distress / reduced engagement / lack of insight into treatment strategies
◆ Dysarthria	◆ Difficulty communicating effectively – very difficult to understand speech

The Clinical Question:

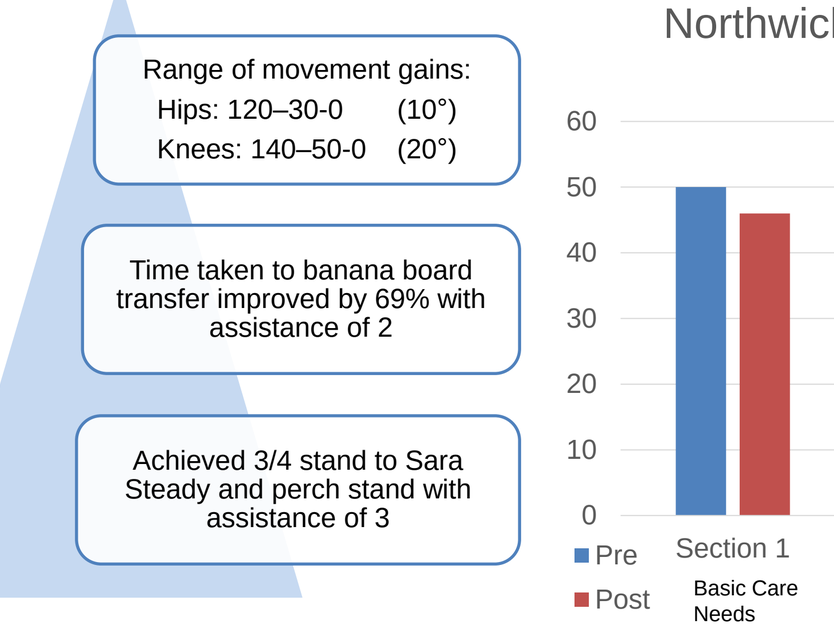
- 14 weeks of hyperacute rehabilitation had been provided, with minimal change in outcome measures and significant patient distress on any intervention: **WHAT NEXT?**
- Patient able to report goal of walking, unable to see benefits of interventions being attempted (stretches, splinting, postural management, facilitated sitting): **HOW CAN WE?**

Research identified the Innowalk Pro: used in cerebral palsy, some research evidence [1,2,3,4,5] – could this work ?

Aim - To evaluate impact of Innowalk Pro on: impairment-based outcome measures; functional movement, and achievement of patient orientated goal to walk

April 2022 Innowalk Trial 1 Outcomes

- Dosage: • 5 weeks
- • 2-3 times per week
- • Total 11 sessions
  • Innowalk time: 15 → 30 mins



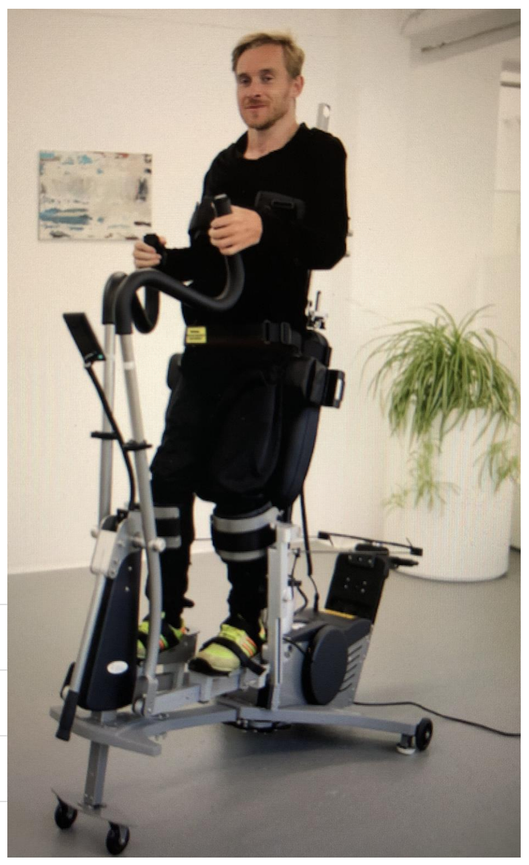
Post Trial Actions:

Rehabilitation plan modified
Addition of functional activities in sitting

New Goals:

Independent rolling in bed.
Transfer with transfer board and assistance of 2

Stock Image: Made for Movement
(Patient unable to consent to photography at time of study. Best Interest meeting agreed trials)



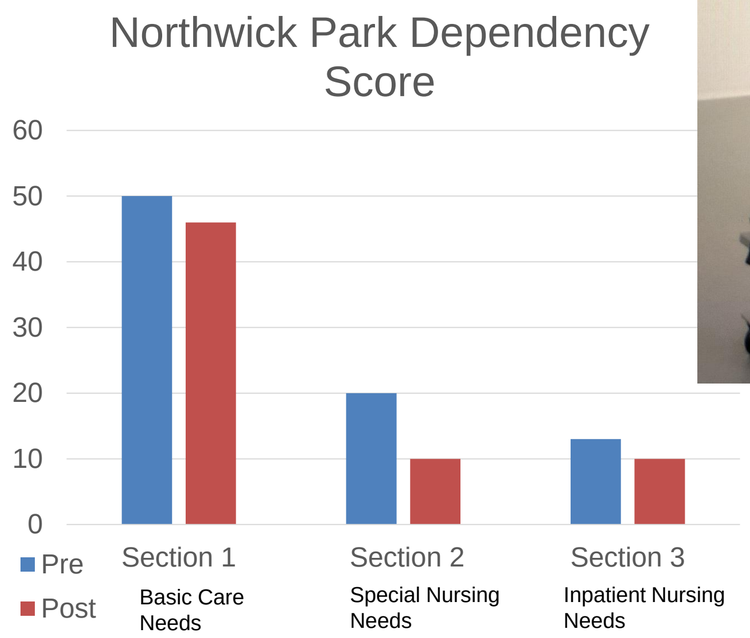
November 2022 Innowalk Trial 2 Outcomes

- Dosage: • 5 weeks
- • 3-4 times per week
- • Total 14 sessions
  • Innowalk time: 30 mins

Range of movement gains:
Hips: 120–30-0 (10°)
Knees: 140–50-0 (20°)

Time taken to banana board transfer improved by 69% with assistance of 2

Achieved 3/4 stand to Sara Steady and perch stand with assistance of 3



Conclusion

Use of the Innowalk Pro provided benefits of:	With impact on:
Increased physical activity	Strength, posture, spasticity, joint range, bowel function, sleep, cognitive interaction and attention
Movement comparable to walking	Patient engagement – goal orientated
Active stretching	Participation in therapy activities
Functional gains	Care needs, quality of life, independence in eating and drinking,
Innovative equipment	Staffing and skill mix required, intensity of treatment, length of stay, costs

The Innowalk Pro was well tolerated and produced sustainable changes to impairments and functional outcomes for a patient with acquired brain injury and associated complex movement disorder, within a short timeframe. It appears to be a feasible item of rehabilitation equipment, and further case studies and/or research should be supported.

References:
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