The Impact of the Innowalk Pro 2 on Hemiplegia Post Stroke, Stroke Rehabilitation Unit

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Introduction: The Innowalk Pro 2 (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).

Patient 1: Background - 41-year-old male, history of a large right hemisphere Intracranial haemorrhage (basal ganglia/thalamus/occipital horns), with ventricular extension & hydrocephalus. Admitted to stroke rehabilitation 14 days post neurological insult.

Patient 2: Background - 85-year-old female, history of right frontal & basal ganglia infarctions. Admitted to stroke rehabilitation 7 days post neurological insult.

Impairments

Left Hemiplegia & atrophy Fatigue Spasticity: Left lower limb/frog leg position Left Sensory, proprioceptive & visual deficits Altered perception of midline **Left facial palsy**

Fractured clavicle/T1 TP (Transverse Process)

Activity & Participation

- Hoist transfer. Poor posture, struggling to maintain dynamic sitting balance, requiring supportive seating. Impacting eating, mood & willingness to sit out. Pain
- Poor positioning in bed, impacting sleep
- Affecting transfers & functional task practice
- Altered communication & ability to eat orally
- Pain impacting engagement
- Impacting functional task practice

Impairments

Left Hemiparesis & atrophy Fatigue Increased tone Left upper limb

Left Sensory, proprioceptive & visual deficits

Altered perception of midline

Reduced attention/processing

Activity & Participation

- Hoist transfer. Poor posture, struggling to maintain sitting balance, requiring supportive seating. Pain. Functional task practice impacted
- Poor positioning in bed, poor sleep quality reflecting on ability to engage in rehabilitation
- Affecting transfers, repositioning & participation in washing & dressing practice



Poor attention/impulsive









Patient's Long Term Goals

- 1- To walk from bed/chair to the bathroom independently +/- walking aid
- 2- To use Left upper limb in function, open wrappers & bottle lids independently

Due to an avid interest in cycling and impairments, the team, patient & family were keen to trial the Innowalk Pro 2 as part of the patient's rehabilitation programme

Patient's Long Term Goals

- 1- To be able to take x3 steps with assistance of 2
- 2- To use Left upper limb to apply face cream & hold a cup/drink
- 3- To perform activities of her own volition

Due to hobbies and impairments, the team & the patient were willing to trial the Innowalk Pro 2 as part of the patient's rehabilitation programme

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

minutes

Method:

Dosage

4 weeks

12 sessions

Scale)

Innowalk 15 to 30

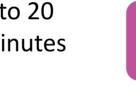


Results:

Innowalk 7 to 20 minutes

BORG

15 to 11

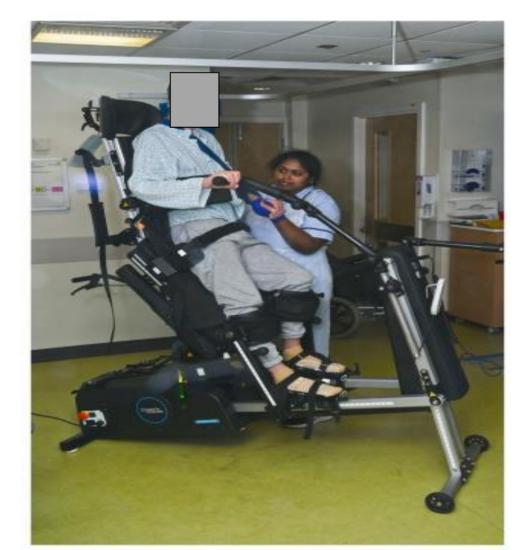


Dosage

Method:

4 weeks

17 sessions





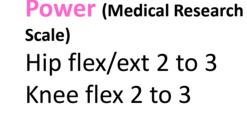
Modified Ashworth Scale Hip ext 3 to 1 Knee flex 2 to 1 Elbow flex 1+ to 1 Wrist ext 1+ to 1



Daily Fatigue Impact Scale 13 to 1

BORG 13 to 8







Power (Medical Research

Hip flex/ext/add 0 to 2

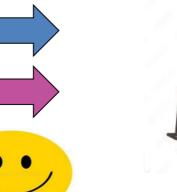
Hip abd 0 to 3

Knee flex 0 to 3

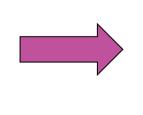














Airflow mattress

Foam mattress

Patient Quotes: 'The Innowalk helped improve my confidence, was comfortable' 'Many people would benefit from using the Innowalk.'

Conclusion: Improvements were gained in impairment & functional based outcome measures when the Innowalk was utilised as the main component of the rehabilitation programme. Recruitment of musculature in the hemiplegic/hemiparetic lower limb was achieved in both patients. This led to changes in functional abilities & transfer status; thus, reducing care & equipment needs; expanding discharge options. Intensity & frequency of therapy increased, important considering the Royal College of Physicians Stroke Guidelines 2023 & SSNAP data collection

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