A PATIENT REPORT

Enhanced rehabilitation results using dynamic bodyweight support

Patient background and rehabilitation goals

Mr S, a 48-year-old man, was admitted to the hospital having sustained a spinal injury following a fall at home. He had a posterior cervical stabilisation at C3-5 due to an unstable spinal injury at C4-5. Mr S presented with significant quadriplegia and was admitted to the Intermediate Neuro Rehabilitation Unit five months post-injury to commence rehabilitation in order to optimise his physical functioning and independence. Before his injury, Mr S lived at home with his wife and four children and worked as a self-employed shop owner.

Mr S presented significant core instability and weakness, quadriplegia and tonal changes with a predominance of underlying low tone complicated by increased tone and spasms, particularly in his lower limbs. He had a poor balance when sitting and required a hoist for all transfers. He had no independent upper limb activity and only little activity in his lower limbs. Any independent movement was generally requiring much effort, which meant that Mr S also fatigued very quickly.

Rehabilitation aimed to achieve:

- A consistent method of transfer that would allow Mr S to independently move in and out of his wheelchair
- A functional stand to aid toileting and personal care activities

Therapy intervention focused on:

- Improving core and proximal stability through exercise and movement
- Improving the activity, control and stability of upper and lower limb movement
- Management of lower limb spasticity
- Optimising independence of transfers and exploring standing and gait training
- Managing fatigue and activity levels

Trainer module – dynamic bodyweight support

Due to the significant core and limb weakness, it was very effortful for both patient and therapist to facilitate both transfers and standing exercises. Completion of a low pivot transfer required the assistance of two helpers, while sit-to-stand and aided standing required the assistance of three helpers. Exploration of lower limb activity, strengthening and balance whilst standing was very difficult due to the amount of help that was required to achieve and maintain standing.

The Trainer module was introduced to explore standing exercises and transfers with a reduced effort required from the patient and therapist and to allow the therapist more specificity of their handling. Therapy interventions were completed four times a week with up to two sessions a week incorporating the Trainer module.

Therapeutic interventions with Trainer module:

- Core activity – including selective pelvic tilting and bridging
- Facilitated standing and weight transfers
- Lower limb strengthening work including squats and sit-to-stand practice

SUMMARY

A self-employed shop owner and father of four presenting with significant quadriplegia was admitted to the Intermediate Neuro Rehabilitation Unit (INRU) several months after his injury. The INRU provides rehabilitation for people with complex neurological conditions. In this case, the goal was to optimise his physical function and independence since he had significant core instability and weakness.

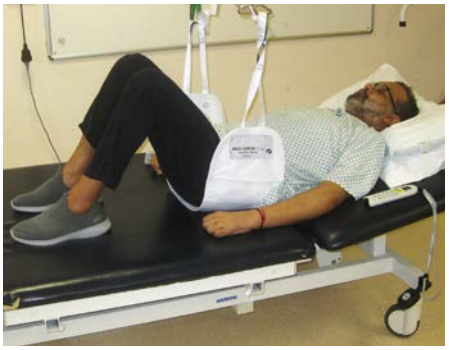
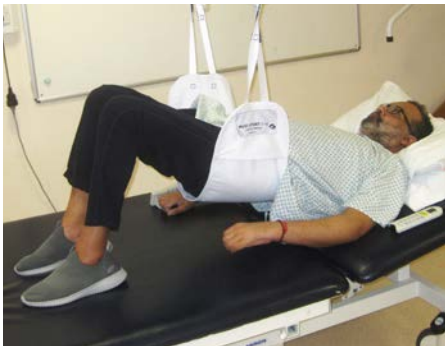
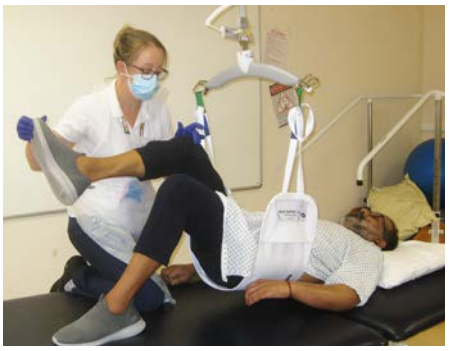
The patient was easily fatigued and had a hard time completing transfers and exercises without the assistance of one, two or even three helpers in some instances.

The therapists introduced and explored the Guldmann Trainer module with dynamic bodyweight support for the rehabilitation process. The Trainer module provided them with the opportunity to explore certain rehabilitation activities sooner. Ranging from simple bed based activities to functional movements such as transfers, sit-to-stand and standing exercises and gait training. The patient was able to participate in rehabilitation that was more intensive because the sessions were less limited by fatigue.

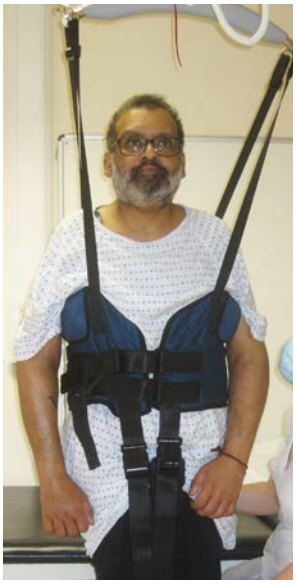
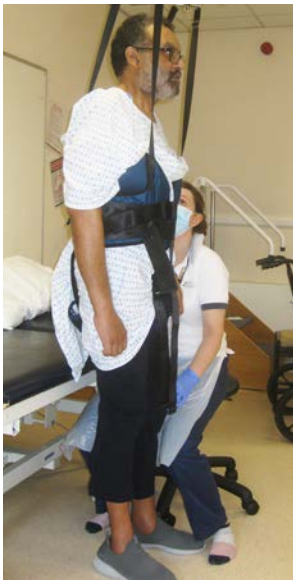
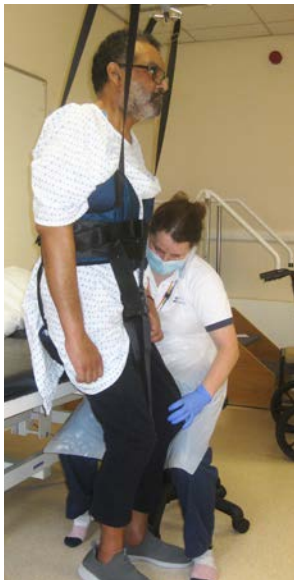
The Trainer module also reduced the physical demands of the therapists involved, meaning they were able to be more specific with therapeutic intervention and handling.

Core activity
Mr S was unable to bridge independently, and when attempting to participate the increased effort often lead to an escalation in lower limb spasticity and spasms, which therefore required careful, specialised handling and help to modify and optimise activity. With the Trainer module, the effort for the patient was significantly reduced and Mr S was able to complete pelvic tilting and bridging activities independently with less effort and a noticeable reduction in his spasticity and spasms.

Repeated use and practice with the Trainer module for bridging resulted in a reduction of the amount of bodyweight support required over time, from 25kg to 12kg. Use of the Trainer module also allowed exploration of more specific and progressive core exercises including lateral weight transfer and single-leg bridges.


Sit-to-stand
The Trainer module offered a bodyweight support component for the trunk and gave some facilitatory input for core stability when utilised for sit-to-stand exercises. This allowed Mr S to stand with the assistance of one helper. He was able to maintain standing with more appropriate lower limb activity and minimal assistance, allowing the therapist to be more specific and facilitatory with handling. This in turn allowed for the progression of strengthening and balance activities while standing including supported squats, lateral weight transfer and balance work.

Outcomes
The Trainer module with dynamic bodyweight support allowed Mr S to participate for longer and engage more effectively in his therapy sessions, the movement was less effortful and there was a noticeable reduction in his fatigue. Therefore, Mr S could participate in more intensive rehabilitation exercises as the sessions were less limited by fatigue.

The requirements and effort for the therapists involved were reduced because of the Trainer module, meaning they were able to be more specific with therapeutic intervention and handling.

On discharge, Mr S was able to complete a low pivot transfer with the assistance of one helper, allowing his family to assist him with this in their home. He was also able to stand with a standing aid with assistance to attend to personal hygiene needs.

Susan Bannister, Clinical Lead Physiotherapist, Intermediate Neurorehabilitation Unit, Trafford General Hospital.

Time to care

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About the Therapy Team at Intermediate Neuro Rehabilitation Unit

The Intermediate Neuro Rehabilitation Unit at Trafford General Hospital provides rehabilitation for people with complex neurological conditions.

The team develop rehabilitation goals with each person enabling the provision of individualised therapeutic interventions aimed at optimising each individual's functional independence and quality of life. The team's vision is to be a pioneer in neuro-rehabilitation within the UK and be the centre of excellence for patients, families, carers and staff.

The team are keen to explore innovative and new technologies to assist them in the provision of the most up to date and effective rehabilitation for patients. The addition of the Trainer module and Positioning lock to the ceiling hoist system has provided them with the opportunity to explore some rehabilitation activities sooner.

Due to its dynamic bodyweight support properties and the diversity of the system, the Trainer module allows therapists and patients the opportunity to explore movements earlier and more independently. These can range from simple bed based activities through to functional movements such as transfers, sit-to-stand and the exploration of standing and gait.

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