

Pushing the envelope of powered mobility to meet postural need

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Summary

This poster case study describes how a client's powered mobility goals are met with an unconventional solution. Due to severely reduced hip and knee flexion this client was unable to achieve the sitting position usually required for powered mobility. Alternative solutions were therefore trialled and adapted to meet the client's needs.

Aims & Objectives

The aim of this study was to identify whether there was equipment available which was suitable to support complex postural needs requiring a prone standing position. To determine whether this wheelchair could be sufficiently adapted to support this particular client's indoor and outdoor wheelchair needs. The client's goals were to be able to mobilise safely and independently indoors, leave her home environment, and access the promenade.

Background

The patient was referred to the Regional Posture and Mobility Service (RPMS) for a review of her postural needs relating to the provision of powered mobility. She has a diagnosis of congenital myopathy and osteopenia leading to kyphoscoliosis and significantly reduced joint range at the hips and knees.

The patient was using a RoMedic ReTurn 7500 transfer aid to move around her flat with her boyfriend pushing her; she was unable to get out of the house.

RPMS set out to investigate if there was a commercially available device within the UK and European Market that is supported by NHS prescription criteria. Design specification detailed:

- Chair to be electrically powered wheelchair that is predominantly indoor with outdoor capability. This chair must be able to manage outdoor classification 2 of mobility wheelchairs.
- User is approximately 130cm height.
- Front anterior support to be able to be padded or shaped to maximise contouring support
- User to be able to enter from rear of chair and have a sling standing style hammock seat anchored to the front of the chair
- Front of chair has anterior support for user to lean forward on to rest due to both hips being in fixed extension with no flexion. There will be a need to further padding to the front of the support
- User to lean anteriorly on support and use a tray mounted controller
- Platform to allow one leg in front of another due to hyper extension of the right knee the platform has to meet a measurement of 60cm in depth

The design criteria were discussed within the West Midland Regional Rehabilitation Engineers' meeting and the Posture and Mobility Group Forum on Facebook to see if there was experience in meeting this design criteria. These groups were unable to provide feedback on experience of such a product. Companies that typically supply to the NHS were contacted with the design criteria. Unfortunately, there was no commercially available mobility item that they could offer.

Further research was conducted by the RPMS team and it was discovered that there were two possible solutions: The TEK Robotic Mobility Device and the Rollerscoot. The TEK Robotic Mobility Device was discounted as an option since it was unable to accommodate the client's short stature, and was contraindicated for patients with flexion contractures at the hips, knees or ankles that prevent upright standing posture. The Rollerscoot is a stand-up scooter that it operated by a joystick, and has five speed levels up to 4 mph. The rider stands on the footplate then leans into the Rollerscoot resting their legs against the padded support. This was demonstrated to the patient using her current ReTurn harness and a Qbitus padded lap belt for positioning and was seen to be effective at supporting the patient safely and comfortably.

Modifications completed prior to handover:

- Two harnesses replicated to posteriorly support the patient as trialled
- Footboard extended
- Front edge of the chest rest of the RollerScoot built up for anterior support
- Controller repositioned to the front with swing-away functionality

Discussion

This case study shows an example of the Regional Posture and Mobility Service working in close partnership with the local wheelchair service to push the boundaries of powered wheelchair provision. By not allowing preconceived perceptions of powered mobility dictate the solution, a novel way to support a complex posture was found.

Within the field of rehabilitation, the technology available is expanding. However, with increasingly tighter budgets with which to reach effective solutions for our patients, it is evermore necessary to think outside the box. It is therefore important to be able to carry out effective searches for equipment that is not necessarily considered the norm within NHS provision, to be able to thoroughly appraise such equipment, and trial these with our patients to ensure an effective outcome is reached for the client and the referring service.

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