What Matters Most: Enabling Occupations Through Custom Activity-Specific Devices in Quadruple Amputee Rehabilitation

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INTRODUCTION

Quadruple limb amputation profoundly challenges independence. This poster highlights the positive impact of close collaboration between patients, occupational therapists, and prosthetic technicians. Which can generate innovative adaptive solutions, resulting in greater independence and engagement in meaningful daily activities.

LILY

Background: Right through elbow, left trans-radial and bi-lateral trans-femoral amputations after contracting meningitis B. Right hand dominant. Rehabilitation was complicated by critical illness polyneuropathy and skin issues.

Initial goals: Independent feeding, oral hygiene and writing. Due to upper limb weakness and reduced range of movement (ROM) a range of devises were used to progress her from needing significant assistance to being independent.

Feeding and Writing: Right (used first as this arm was stronger and had greater ROM) and then left introduced to build strength and ROM for future split hook use. Initially requiring assistance to move both arms and to don the straps. A slot was added later to the right strap to hold a pen.





Progressing feeding and writing: Lily preferred to use her right arm for feeding and writing, so right cuff straps were developed for independent donning, using the left split hook. The writing cuff was adapted with multiple slot sizes to accommodate different pens and art materials.




Oral hygiene: Initially with a toothbrush cuff strap with assistance to hold her arms together and move them, progressing to an enlarged plastazote toothbrush handle (initially with assistance), which was thinned as her strength and ROM improved.

Goal progression: Custom activity specific solutions were also utilised as part of Lily's personal care rehabilitation


A cuff strap to hold a dressing stick/ hook for dressing/ undressing.

Platazote handles were added to her make up to enable her to hold them between her arms.

TRACIE

Background: Left partial hand (amputation through 5th metacarpophalangeal joint, 2nd to 4th metacarpals and 1st carpometacarpal joint), right trans-radial and bi-lateral trans-tibial amputations after contracting sepsis. Left hand dominant.

Initial Goals: Independent feeding and tablet use
A left arm cuff strap for stylus use enabled immediate independence. While effective for feeding, the strap requires assistance to don and it was hard to keep her residual hand out of her food. The stylus holder could be used independently over dressings both pre and post amputations.



Goal progression: As Tracie was left-hand dominant, preserving function in her left partial hand was a priority. Custom silicone devices that she could don independently were developed to support daily activities.

Hairbrush

Cutlery holder

'Palm filler' For holding/ applying hair products and body wash.


Large holed devise, made for holding a sharp knife, used across a range of activities



Eye hole in both used for holding different makeup items.

CONCLUSION

Custom, activity-specific devices offer a cost-effective, adaptable, and timely means of supporting early rehabilitation, independence, and participation following quadruple limb amputation. Co-location of acute medical care and the artificial limb and appliance service enabled prompt assessment, device provision, and modification for both patients.

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