

Seating & Wheeled Mobility and Acquired Brain Injury

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Fact Sheet

Acquired Brain Injury (ABI) encompasses a broad range of diagnoses, injuries, and disorders. The information obtained here is related to seating and mobility considerations for people following traumatic injury, hemorrhagic or ischemic stroke (CVA), toxicity or metabolic disease, for examples. Thus, the information provided below may not apply to an individual with a developmental or genetic disorder or a progressive disorder impacting cognitive functioning.

TBI:

- According to the CDC, 57% of people will have moderate to severe disability at 5 years following a TBI¹
- Approximately 50% of people will show a decline in function at 5 years¹
- Military personnel are at higher risk of TBI than civilians²

CVA:

- Mobility is reduced in half of all stroke survivors aged 65 and older¹
- Indicators that a person may need wheeled mobility post-CVA: non-ambulatory at admission, lower total FIM score at admission and left hemispheric stroke³
- Chronic fatigue has been found in up to 70% of people post-CVA⁴
- Rates of wheelchair use post-CVA: 59% do not require a wheelchair at discharge from inpatient; 40% discharged with MWC and 1% with PWC³
- Equipment may be valued higher when linked to a social interaction or occupational performance⁵

Although difficult to generalize, here are 4 considerations based on the current body of evidence and clinical expertise:

1. Set seating goals to reduce risk of posture and skin impairments while allowing for recovery and mobility
2. Posture and support needs vary by stage of recovery
3. Ultra-lightweight manual wheelchairs and/or Power Assist options to improve mobility efficiency are often overlooked for this population
4. Power mobility can be a therapeutic intervention

Posture

- Postural impairments may be attributed to:
 - o Asymmetrical strength, visual and perceptual deficits, cognition, fluctuating muscle tone, spasticity, heterotopic ossification, fatigue
 - o Limited access to appropriate solutions and lack of 24/7 positioning

Wheelchair skills training:

- Provide warm-up and cool down⁶
- Schedule training at times of increased alertness
- Spread training out to allow rest and consolidation of what has been learned

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Manual Mobility

- Manual tilt-in-space may improve postural alignment, support head control and provide safe dependent mobility and pressure management.
 - o Look for reinforced or dynamic components if significant spasticity, ataxia, are present
- Propulsion patterns will vary and are by nature more inefficient than bilateral UE propulsion. The unilateral (one arm and one leg) propulsion technique is inherently more difficult⁶.
- Customizable, ultralight manual wheelchair are recommended when self-propelling with any propulsion technique.
- In high rolling resistance situations, success rates were 33-50% higher in the backward direction⁷
- Seat to floor height is critical and can be configured on a customizable ultralight manual wheelchair.
 - o Based on a study with able bodied participants, lowering the seat height increases speed and push effectiveness and decreases perceived difficulty⁸

Power Mobility

- Transitioning to power mobility can increase quality of life
- Power wheelchair navigation skills can be improved for individuals with neglect⁹
- Allowing additional time to assess postural needs, programming of device and motor learning strategies are keys to success

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