Evaluation for Seating and Wheeled Mobility

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Functional Mobility

*What does that mean?*
Crossing street in scooter

Driving scooter into elevator

Indications for Scooter

- Safely transfer to & from a scooter
- Be able to operate the tiller steering system
- Maintain postural stability and position while operating the scooter in the home
- The patient's home provides adequate access between rooms, maneuvering space, and surfaces for the operation of the scooter that is provided
Additional Scooter Indications

- User able to cognitively, perceptually, & physically operate device
- Device will maneuver in the home
- User meets weight capacity
- User has not expressed an unwillingness to use the device in the home

Power Wheelchair Bases

- Front-Wheel Drive
- Mid-Wheel Drive
- Rear-Wheel Drive

Intake/Interview

- 65 year old male
- T9 Incomplete SCI from a gun shot wound resulting in paraplegia
- Bilateral rotator cuff tears
- Carpal Tunnel Syndrome
- Congestive Heart Failure
- Depot style manual wheelchair
- 12 hours per day in wheelchair
- Lives with wife in accessible home
- Retired
Intake/Interview

Mobility Related Activities of Daily Living

- Unable to functionally ambulate
- Unable to functionally propel WC
- Independent with all basic ADL’s
- Difficulty getting to locations where ADL’s are performed
- Limited community mobility

Intake/Interview

Client Stated Goals

- Independent ADL’s
- Comfort
- Indoor mobility
- Outdoor mobility
- Transportability

Physical Motor Examination

Posture

- Mild fixed kyphosis
- Sits symmetrical
- No history of pressure sores
- Low back pain
Physical Motor Examination

Upper Extremity

- Grip 4/5 bilaterally
- Wrist extension 4/5 bilaterally
- Biceps R 5/5 L 3/5
- Deltoids R 5/5 L 2/5
- Reports bilateral shoulder pain and hx of left elbow fracture and left carpal tunnel release

Lower Extremity

- Strength L 5/5 R 0/5
- Reports pain, numbness and tingling in R LE
- Wears a R AFO with high tone on the right

Weight Shift Status

- Independently able to shift body weight for pressure relief
Transfer Status & Clinical Trials

- Independent stand pivot weight bearing on the left

Functional Mobility

- Attempts to ambulate with use of a R AFO and straight cane
- Hx of falls resulting in ER visits
- Ability to ambulate is NOT functional

Example: Timed Up & Go (TUG) Test
Reach

- Independent with reaching objects located at different surface heights

Clinical Trial: Indoor Mobility

- Group 2 Mid-Wheel Drive Power Wheelchair

Clinical Trial: Outdoor Mobility

- Curb cuts
- Uneven surfaces and terrains
Independence in Manual Wheelchair

Independence in a wheelchair

Independence in Manual Wheelchair
Wheelie to get up a curb

Matching Person to Technology

PERSON

POSTURE

PERFORMANCE

Technology Impacts Performance
Person Impacts Technology

Rear Wheel Position

Once posture optimized . .

Adjust the rear wheel as far forward as possible without compromising the stability of the user.

CPG Recommendation #8

Horizontal Position

Often referred to as Center of Gravity (COG)

Usually designated as front of backpost to center of rear axle.
The Wheelie

Rear Wheel VERTICAL Position
CPGR #9

• With hand at top dead center of handrim, recommended elbow angle is between 100 and 120 degrees (van der Woulde, 1989)

• Strong correlation with center of finger at center of axle
The Genius of “AND” . . .

1) Handcycling 2) track 3) swimming, 4) skiing 5) tennis 6) basketball . . .

Right above knee prosthetic limb, left ankle foot orthosis, custom wheelchair AND sports equipment.

Alternative Controls
Tilt

Recline

Front View Posture
MAT ASSESSMENT (SEE VIDEO)

Best Practice
RESNA Wheelchair Service Delivery Guide (Shea et al, 2011)

• Assessment by a knowledgeable team of clinicians
• Face-to-face evaluation
• The individual's medical history
• Physical abilities and needs
• Functional abilities and needs
• Seating and positioning abilities and needs
• Home accessibility
• Currently used assistive devices
• Environmental considerations
• Follow-up & Outcomes

Why We Do What We Do
Why We Do What We Do

Thank You...