Transfers for Individuals with SCI

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Transfers and SCI

• Fundamental activity of daily living for wheelchair users1,2
  ▪ 15-20 Transfers per day
• Physically demanding1,2
  ▪ Extremes of flexion, abduction, and internal rotation
• Increased risk for shoulder pain and impingement1
• Increased Pain → Withdraw from participation in activities → Functional Decline1
  ▪ Decreased Quality of Life and Increase in Medical Expenditures
• Best transfer skills are critical to minimize secondary injuries1

The Transfer Assessment Instrument (TAI 3.0)

• Standardized evaluation and measurement of transfer skills3
  ▪ Quantifiable
• 2 Part Questionnaire2,3,4
  ▪ Part 1: 15 Questions about transfer components
  ▪ Part 2: 12 Questions about consistency of skills
• Final Score = Average of Part 1 and Part 2 Scores3
• Higher score is associated with reduced shoulder joint force2

TAI Cont’d

• The TAI is a reliable measure3
  ▪ Interrater and Intrarater
• Appropriate measure for clinicians with varying levels of experience and specialty1
• The TAI is a valid measure3
• Not biased by age, type of disability, sex, body weight, strength, balance, wheelchair use, pain, and transfers per day1,4

Based on Tsi, Chung-Ying et al., 2013

The Evidence

• TAI-Based transfer training showed improved biomechanical effects on upper extremities3
  ▪ Better shoulder positioning and lower joint loads
• Individuals with better transfer technique (based on TAI components) exhibited less shoulder pathology and self-reported shoulder pain1
TAI Transfer Components

Does he/she...

1. Place chair within 3 inches of transfer surface?
2. Angle between the chair and the transfer surface ~20-45°?
3. Position chair to clear the wheel?
4. Remove the arm rests?
5. Perform a level or downhill transfer (if possible)?

Transfer Components Cont’d

Does he/she...

6. Put feet in a stable position?
7. Move to the front of the seat?
8. Place hands in a stable position?
9. Utilizing a handgrip correctly with the leading arm (or hand flat)?
10. Utilizing a handgrip correctly with the trailing arm (or hand flat)?

Transfer Components Cont’d

Does he/she...

11. Control the flight?
12. Use a head-hip relationship?
13. Position the lead arm correctly?
14. Land smooth and controlled?
15. Assistant supports the subject’s arms? (If applicable)

TAI Updates

- New Version (4.0) coming out soon
- More clinically useful
- Can be used as self-report measure
- Plain language and more pictures
- No need for training power point (required for 3.0)
- Independent, Assisted, and Dependent
- Added question for wheelchair brakes
- Edited confusing questions (head-hips, arm abduction/IR)
- Paper Form and Web Based Version

References


Transfer Devices

For Individuals with SCI
Hydraulic Lift (Hoyer)

- Good for all levels of spinal cord injury
- Good for individuals who cannot self-transfer, or whose caregivers are not able to provide adequate assistance with other transfer techniques

Pros:
- Safe, lower risk of fall/injury
- Minimal energy cost and body strain for caregiver
- Only requires one person

Cons:
- Time
- Not easily transported
- Space
- Not good for all surfaces/transfer types (car, bathroom)

Transfer Board

- Good for individuals with paraplegia, some with tetraplegia who can self-transfer
- Good for independent, assisted, and dependent transfers

Pros:
- Time
- Can be used for many different types of transfers
- Strengthening and skill benefit

Cons:
- Energy cost to caregiver(s) and individual
- Requires training and good body mechanics
- Potential for fall and injury to caregiver/individual
- Shearing
Beasy Board™

- Good for all levels of SCI
- Good for situations where size of individual is much greater than size of caregiver
- Good for individuals who are unable to transfer with traditional transfer board

Pros:
- Reduced energy cost
- Reduced sheering
- Reduced caregiver burden
- Various shapes and lengths

Cons:
- Not good for uneven transfers
- Still have potential for fall/injury
- Usually out of pocket
- Sometimes difficult to place under person (thickness)

Stand up Lift

- Good for certain physical presentations after SCI
- Good for spastic presentations or incomplete paraplegia/tetraplegia where some level of standing is possible

Pros:
- Easier and faster than hoyer
- Sometimes better for toileting
- Strength benefit

Cons:
- Requires adequate ROM at knees and ankles
- Space required
- Not easily transported
- May not be good for all surfaces
- Spinal precautions and upper extremity strain with sling
- Coverage?
Pivot Disc

- Good for certain physical presentations after SCI
- Good for spastic presentations where independent or assisted standing is possible but individual is unable to step or pivot

Pros:
- Small and light
- Transportable
- May be used for various transfers including car
- Strength benefit

Cons:
- Requires strength to stand
- Must transport and have access to it for various transfers
- May become reliant on it
- Usually out of pocket
- Stability and safety issues

Bed Ladder

- Good for various levels of SCI, especially tetraplegia where hand function is compromised
- Good for bed mobility and trunk management where use of bedrails and other techniques is not possible

Pros:
- Inexpensive
- Many different options for mounting and use
- Does not require intact hand function

Cons:
- Must be in reach
- May depend on initial positioning in bed
- Upper extremity strain
- Skin compromise
Thigh Lifters

• Good for various levels of SCI, especially tetraplegia where hand function is compromised
• Good for lower extremity management during transfers and bed mobility

Pros:
• Inexpensive
• Does not require intact hand function
• Good training tool

Cons:
• May not be realistic for functional use
• Must always have access to device
• May become reliant on it
• May take increased time or assistance to don

Leg Lifter

• Good for various levels of SCI with partial or full hand function, incomplete or complete injuries, and sometimes spastic presentations
• Good for lower extremity management during transfers and bed mobility
Leg Lifter

• Pros:
  • Inexpensive
  • Can be used for one or both legs
  • Decreases strain and energy expenditure
  • Requires less flexibility

• Cons:
  • Difficult to thread foot through loop
  • Difficult to maintain knee extension to clear lower leg
  • Must be in reach
  • Must always have access to device
  • May become reliant on it

Transfer Handles

• Good for various levels of SCI
• Good for individuals with body habitus or short upper extremities

Transfer Handles

• Pros:
  • Increases arm length
  • Relatively inexpensive
  • Transportable

• Cons:
  • Stability
  • May become reliant
  • Must have access to them for various transfers
  • Usually require some hand function

Modified Transfer Handle

• Pool Noodle
• Dycem
• Duct Tape