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Still having issues?

- Call 866-782-9924 (M-F, 8 AM-8 PM ET)
- Email customerservice@OccupationalTherapy.com
Please review these learning outcomes:

After this course, participants will be able to:

- List 3 school related factors essential to a power wheelchair evaluation.
- List 3 power wheelchair access methods.
- List 3 strategies for evaluation and training when a power wheelchair is unavailable.
WHAT WE WILL BE COVERING:
Assessment
- Team approach
Access methods
- Proportional
- Digital

POLL #1
Are you a part of a power wheelchair assessment team?
- Yes
- No
- I would like to be!
ASSESSMENT

Goals
Current mobility skills
Related factors
Medical issues
Cognitive issues
Future Needs
Age
Mobility Training
Justification and Funding issues

GOALS

Clinician Goals:
- To determine if the client is an appropriate candidate for a power mobility base
- To determine the most appropriate:
  - Power wheelchair and components
  - Actuators
  - Access method
- To justify the recommended equipment adequately to obtain funding
- To provide adequate support/training for a successful outcome
GOALS

Client goals
- i.e. “I want a fast wheelchair”

Caregiver goals
- i.e. “I don’t want any more holes in my walls”

CURRENT MOBILITY SKILLS

Ambulation with or without assistance
Manual wheelchair
Any prior power mobility experience
RELATED FACTORS

Transfers
- seat to floor height

Accessibility
- Home, school
- Vehicle, school bus

Seating
Need for power actuators
Need to interface other assistive technology

SCHOOL RELATED ISSUES

Transportation

Accessibility to school building/grounds

Storage, charging, maintenance

Seat to Floor height
- Transfers, work surface clearance

Mounting other AT
Interfacing other AT
MEDICAL ISSUES

Motor control
Muscle tone
Muscle strength
Extraneous movement
Reflexes
Seizures
Alertness level
Vision and visual perception
Hearing
Progressive disorders

MEDICAL ISSUES

Motor Control
- Volitional, isolated, controlled and repeatable movements
- Utilize as small a movement as possible
- Proportional control requires grading of force and distance of movement

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MEDICAL ISSUES

Muscle Tone
- Low tone may mean limited active range of motion and decreased strength
- Increased tone often limits midline and midrange control
- Fluctuating tone often results in fluctuating performance!

MEDICAL ISSUES

Muscle Strength
- For active range of motion
- For activation
- For sustained activation
- Limit active range and force required
MEDICAL ISSUES

Extraneous Movement

- Athetosis or fluctuating tone: often control is best away from midline and at end ranges, stabilize adequately to allow isolated control
- Tremoring: decrease sensitivity if using proportional control

MEDICAL ISSUES

Reflexes

- Try not to place an access method in the path of a reflexive movement for activation or release
- i.e. ATNR, Rooting
MEDICAL ISSUES

Seizures
- If a client has high seizure activity, a power wheelchair may not be appropriate
- Make sure the access method is released during a seizure
- Make sure the client can drive safely after a seizure
- Supervision

MEDICAL ISSUES

Alertness Level
- Is the client alert during driving?
- Persons with head injuries often have periods of agitation and sub-aroused states
MEDICAL ISSUES

Vision and Visual Perception
- Persons with low vision can often drive functionally, particularly indoors
- Blind drivers: canes, echolocation, sensors and programming
- Field cuts and left sided neglect
- Perception: depth perception often doesn’t develop fully until a person moves independently

MEDICAL ISSUES

Hearing
- Limited hearing is usually not a limiting factor in driving
- Client will need to compensate with vision and judgment
MEDICAL ISSUES

Progressive Disorders
- Access method may change as condition progresses
- ASL/Switch-It! lease program for ALS

COGNITIVE ISSUES

See Criteria handout
- Cause and effect
- Stop and go concepts
- Directional concepts
- Judgment
- Problem solving
- Following directions
- and ... Motivation
CAUSE AND EFFECT CONCEPTS

The client realizes that activating the access method is causing movement of the power wheelchair
Measure: verbal or non-verbal expression

STOP AND GO CONCEPTS

The client realizes that activating the access method is moving the power wheelchair and that releasing the access method stops that movement
Measure: verbal, following directions to Stop and Go or stopping for obstacles. Does not require accuracy.
DIRECTIONAL CONCEPTS

The client realizes that the power wheelchair will move in different directions, depending on how the access method is used.

Measure: the client responds verbally or non-verbally to different movement caused by different input or attempts to move to a location using different directional commands.

JUDGMENT

The client demonstrates developmentally appropriate judgment

Measures:
- the client recognizes obstacles and attempts to avoid
- the client is not aggressive
- The client demonstrates caution
**PROBLEM SOLVING**

The client demonstrates developmentally appropriate problem solving during driving.
Measure: the client will maneuver the power wheelchair to a designated destination without cues.

**FOLLOWING DIRECTIONS**

The client demonstrates the ability to follow directions while driving.
Measure: the client will follow directions such as Stop, Go and Come Here.
MOTIVATION

Motivation is important, too

POLL #2

What areas do you find most often preclude power mobility in your clients?

- Cause and Effect
- Directional Concepts
- Problem Solving
- Judgment
FUTURE NEEDS

Progressive disorders
Growing bodies
  ▪ Growth of wheelchair frame
Children: growing minds
Mobility needs change with age
  ▪ Environments, distance, independence
Work requirements
Need for weight shifts

POWER SEAT FUNCTIONS

Tilt
Recline
ELRs
Elevators
Standers
Why important?
RESNA Position Papers
AGE

How young is too young?

Research has demonstrated that children can drive a power wheelchair at 18 months (Butler, 1984)
New research supports augmented mobility around 9 months!
It is cognitively easier to drive with 3 switches (using hands) than a joystick at a young age
Borrow a kid and get a baseline!
MOBILITY TRAINING

As part of the evaluation process
Refer to Mobility Training Webinar

ASL REMOTE STOP SWITCH

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JUSTIFICATION AND FUNDING ISSUES

The evaluation report
Justifications - what works
Justifications - what doesn't work
Talk to those suppliers!
Photos and Video

ASSESSING WITHOUT A PWC

Initial assessment can be accomplished without a power wheelchair

How?
- Using the manual wheelchair
- Using a Turtle Trainer
ASSESSMENT QUESTIONS?

THE ACCESS METHODS

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ACCESS METHODS

There are many, many access methods available
This is an overview
Proportional
Digital

ACCESS METHODS: PROPORTIONAL

Joysticks
  ▪ Can be mounted in many locations
  ▪ handle types
  Touch pads
  Mini joysticks
  Magitek
JOYSTICK - HAND

Proportional joystick control requires grading of force and distance of movement
Grading requires co-contraction of the flexors and extensors
Difficult for clients with abnormal muscle tone

JOYSTICK - TOUCH PAD

Switch It!
Touch Pad
HMC TOUCHLESS FINGER JOYSTICK

Proportional Control
Fiberoptic light

JOYSTICK - CHIN

Can be mounted on a swing away arm or bib
Can lead to repetitive stress injuries of the jaw or cervical area
Can be difficult to use if surface isn't smooth
MINI PROPORTIONAL JOYSTICK

Clinical Indicators:
- Requires small travel distance
- Requires minimal force to move and sustain joystick
- Can be fragile
- MEC includes reset (push downward)
ASL OR SWITCH IT! PLAYSTATION DRIVE CONTROL
No joke!
Controls power wheelchair, seat functions and mode changes

DIGITAL ACCESS METHODS

- single switch scanning
- 2, 3, 4 or 5 switch combination
- sip ‘n puff
- Head Array (proximity)
- 4 switch array (proximity)
- 2 or 4 switch fiberoptic array
SWITCH DRIVING

1 switch: scanning
2 switch: QLogic, Forward, Left, Right and Reverse
3 switch: Forward, Left, Right
4 switch: Forward, Left, Right and Reverse or Reset
5 switch: Forward, Left, Right, Reverse and Reset

SINGLE SWITCH SCANNING

Clinical Indicators:
- only 1-2 switch sites can be found
- Client can see and monitor display

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SINGLE SWITCH PROGRAMMING

4 or 8 direction
Scan pattern
Scanning “Mode”

ANY 2, 3, 4 OR 5 SWITCH COMBINATION

Clinical Indicators:
- Ideally, 3 switch sites provides Forward, Left and Right directional control
- If a 4th switch can be identified, Reset provides the most function

Requires a switch
interface box and switches
SIP 'N PUFF

Clinical Indicators:
- Little control of head or extremity movement
- Good oral motor control, lip closure, intact palate
- Full directional control and speed control

ASL HEAD ARRAY (PROXIMITY)

3 -5 proximity switches in a tri-pad headrest

Clinical Indicators:
- Fair to good head control
- Little extremity control
ASL 4 SWITCH ARRAY (PROXIMITY)

Typically placed under a tray
Consider tactile cue above (i.e. loop Velcro)
Consider pigtail cable

PROXIMITY ARRAY

Clinical Indicators:
- Fair upper extremity control
- Accommodates larger movement
- Eliminates a plane of movement

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ASL 4 SWITCH FIBEROPTIC ARRAY

Small targets
Accommodates very small movements with no force
Typically placed by finger or thumb
Cables are fragile

POLL #3

Which of the following access methods do your clients use? (mark all that apply)

- Joystick
- Head array
- Mini proportional joystick
- Proximity switches under tray
- Fiberoptics

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WHAT TO DO NEXT:

Get to know your suppliers
Get to know the products
  ▪ Arrange for manufacturer inservices
  ▪ Borrow equipment
  ▪ Drive!
  ▪ Program!

TAKE HOME MESSAGE:

Once readiness is established, assessment is performed to determine the most appropriate access method, power wheelchair and components
An optimal access method optimizes driving
QUESTIONS?
Type them into the chat box

RESOURCES
Access to Independence website
• www.atilange.com
• Indoor Power Mobility Criteria
• Pre-mobility Training Guidelines
• Mobility Training Guidelines
THANKS!

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