Learning Outcomes
The participant will be able to:
1. describe the difference between analog and digital control.
2. list 3 different mini proportional joysticks and clinical indicators for each.
3. describe clinical indicators for joystick placement at the hand vs. the chin.

Introductions
- Hello!
- Handouts
- Disclosure:
  - This webinar is sponsored by Stealth Products.
  - While I do teach educational courses for Stealth Products, I am in Private Practice. I use a variety of equipment and will attempt to present this information in a non-biased way.

Some thoughts…
- Impact on Driving Method success:
  - Optimal positioning
  - PWC assessment
  - Drive wheel configuration
  - Tracking technologies
  - Programming
  - Mobility training

Proportional Driving Methods
- Also called Analog
- Primarily Joysticks
- 360 degree directional control
- Speed control
- Vs. Digital

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
Clinical Decision Making

- Does the client have the ability to grade the force and distance of their movement?
  - Yes
    - Explore Standard Joysticks
  - No
    - Explore Digital Access Methods

Clinical Decision Making

- Does the client have adequate movement and motor control for joystick use?
  - Yes
    - Explore Standard Joysticks
  - No
    - Explore Digital Access Methods

Clinical Decision Making

- Can the client optimally control a standard joystick mounted at the end of the armpad?
  - Yes
    - Explore standard mounting
  - No
    - Explore alternative placements

Joystick placement

- Sometimes the problem is location...
- Most joysticks are mounted at the end of the armrest to one side of the wheelchair

Swing away joystick mounts

- Allows more midline placement

Joystick Angles

- The angle of the joystick can also be changed to match the angle of client movement
Clinical Decision Making

- If a midline mount is required, does the client need to independently move this out of the way?
  - Yes
    - Explore power mounting
  - No
    - Caregiver can move mount out of way for transfers

Power Options

- Motion Concepts Power joystick mount
- [video]

Mushroom Joystick

- Designed for clients who cannot grasp a joystick handle
- Stiff
- Alternative:
  - Bodypoint dome handle
  - Textured

Stealth Joystick Handles

- Goal post style designed for poor grasp

Clinical Decision Making

- Does the client have difficulty grasping a standard joystick handle?
  - Yes – Explore other style joysticks or other handles
  - No – Explore standard joystick

Joystick Handles

- Does the client have excessive force which could break a standard joystick?
  - Yes – Explore heavy duty joystick
  - No – Explore standard joystick
**Tough Joystick**
- Switched joystick (Digital)
- 4 or 8 directions
- Heavy Duty to withstand significant forces
  - Significant force may mean decreased control

**Heavy Duty Joystick**
- Mo-Vis
- All-round Heavy Duty Joystick
- For clients who use excessive force
  - Enlarged throw and force (650 grams)
  - 2 switch jacks
  - Power and Mode
  - Mini USB port for programming

**Heavy Duty Kits**
- Mo-Vis
  - Retrofit a standard joystick to accommodate excessive force
  - R-Net
  - Curtis

**Mo-Vis**
- Mo-Vis is in Belgium
- Distributed by Stealth Products
  - Great line of alternative driving methods
  - Unique programming software

**Clinical Decision Making**
- Is there adequate room to mount a standard joystick where required for optimal control?
  - Yes – Use a Standard Joystick
  - No – Consider Compact Joystick

**Compact Joystick**
- Compact Joystick Single Switch
- Textured for easier grasp
- Top is non-removable
- One switch on top of joystick acts as a Reset
  - Dual Switch version
  - Two switches on top of joystick send signals thru 2 switch jacks
Compact Joystick

- Mo-Vis All Round Joystick Light (120 grams)
- All Round Joystick (250 grams)
- Mini USB port for programming

Compact Joystick

- 2 switch jacks
  - Power and Mode
  - Mounts on sides for 1-2 twist switches
- Variety of mounting options
  - Hand
  - Chin

Clinical Decision Making

- Does the client have the ability to grade the force and distance of movement, as well as have adequate movement and motor control, but not at the hand?
  - Yes, at the foot
  - Explore proportional foot control
  - Yes, at the forearm
  - Explore proportional arm control
  - No – explore Digital Driving Methods

Foot Control

- Proportional foot control
- Attaches to compact joystick
- Some clients will have better control with the foot "free"

Arm Control

- Switch It proportional arm control
- Attaches to compact joystick
- Appropriate for clients with limited grasp and/or wrist control, who have good control at the shoulder and elbow

Clinical Decision Making

- Does the client have adequate force to initiate and sustain joystick direction?
  - Yes – Explore Standard Joysticks
  - No – Explore Mini Proportional Joysticks
Mini Proportional Joysticks
• Mini Proportional Joysticks require less active force and travel to activate
  • Standard joystick requires approximately 250 grams of force
  • Many Minis require approximately 50 grams of force
    - Often appropriate for use at the chin
  • Many Minis require approximately 10 grams force
    - Often appropriate for use at a finger or thumb

Clinical Decision Making
• Will the client use the mini joystick by the chin?
  - Yes
    • Mini proportional joysticks require less force than a standard or compact joystick, reducing RSI risk
    • Minis requiring approximately 50 grams of force work best at the chin

Mo-Vis Mini Proportional Joysticks
• Mo-Vis
  • Mo-Vis Multi Joystick
    - 50 grams
    - 2 switch jacks on joystick and on interface box
    - Mini USB on configuration box for programming
    - Various mounting options

Switch It Mini Proportional Joysticks
• MicroPilot
  • Isometric joystick
  • Requires very little throw
  • Relies on force instead, approximately 10-50 grams
  • Adjustable force
  • May result in less extraneous movement by the chin
  • Can mount parallel to floor

Clinical Decision Making
• Will the client use the mini joystick by the chin?
  - Yes
  • Are Secretions an issue?
    - Yes
      • Use a sealed mini proportional joystick

ASL Mini Proportional Joystick
• Extremity Control
  - 120 grams
  - sealed
Stealth Mini Proportional Joysticks

- Precision Mini Proportional Joystick (PMP)
  - Sealed
  - i-Drive version
- A line of alternative access methods that work on any PWC electronics package and can be programmed through the PWC programmer or separately through i-Drive software on a computer or tablet

ASL Mini Proportional Joysticks

- MEC
  - 18 grams
- Micro Mini
  - Isometric joystick

Mo-Vis Mini Proportional Joysticks

- Mo-Vis
- Mo-Vis Micro Joystick
  - 10 grams
  - 2 handles
  - 2 switch jacks on interface box
  - Mini USB on configuration box for programming
  - Various mounting options

Clinical Decision Making

- Will the client use the mini joystick by the finger or thumb?
  - Yes
  - Minis with approximately 10 grams of force work well in this area
  - Less leverage by finger or thumb than by chin

ASL Mini Proportional Joysticks

- HMC
  - Permobil
  - 13 grams

Mo-Vis Configurator Software

- Many parameters can be adjusted separate and in addition to the power wheelchair programming parameters
- Road Compensation
  - The wheelchair automatically slows when encountering uneven terrain
  - Prevents reduced control with sensitive joysticks mounted at the hand or chin
Switch It Mini Proportional Joysticks
- MicroPilot
  - Isometric joystick
  - Requires very little throw
  - Relies on force instead, approximately 10-50 grams
  - Adjustable force
  - Can mount parallel to floor
- Micro Guide
  - Non-Isometric
  - 25 grams

Clinical Decision Making
- Does the client have difficulty using a joystick by the hand during cold conditions?
  - Yes
    - Try a hand warmer

Other New Items!
- Mo-Vis
- Hand Warmer
  - Hand to drive when hands are cold
  - MS
  - Duchenne
  - Recycles air from in front of warmer to reduce energy consumption
  - Programmable
    - Temperature, fan speed
    - Optional Hand Hood

Clinical Decision Making
- Can the client control a mini proportional joystick by a finger or thumb and does the client wish to hold the driving method in midline and close to the body?
  - Yes – Explore Adapted Game Controller
  - No – Explore other Mini Proportional Joysticks

ASL or Switch It Game Control Drive Control
- No joke!
- Controls power wheelchair, seat functions and mode changes
- Client can hold close in to body
- Light touch buttons
- Built-in mini joysticks
- Durable!
- Cannot assign buttons in the field
- Great for clients with Duchennes
- 40-50 grams on joysticks

Mini Proportional Joysticks
- Mounting options
  - Hand
  - Head
Clinical Decision Making

- Choose a mount by the chin:
  - Swing away mount stays in position relative to the wheelchair
  - Bib or harness mount stays in position relative to the client
  - Does the client need to move the mount independently?
    - Power mount

Mounting - Head

- Harness and bib
- Some clients need the joystick mounted at the chin
- Some mounting options mount to the client
- This keeps the joystick in better alignment with the client, though does not readily move out of the way

Head - Power Options

- Power swing away
  - Joysticks
  - Sip 'n Puff
  - Any control by mouth
  - Hydration
  - Lightweight devices

Clinical Decision Making

- Choose a mount by the hand:
  - Ensure that the forearm, wrist and hand are well supported
  - Arm trough or tray
  - Ensure the joystick is mounted in the optimal position
    - Hand pad
  - Midline and/or swing away mount, as needed

Mounting - Hand

- Many clients using a mini proportional joystick by the hand require hand and forearm support
- Mounting in a tray or hand tray provides support, protects the joystick and provides height adjustment in relation to the tray
Take Home Message:
- There are many ways to drive a power wheelchair!
- Positioning, Drive Wheel Configuration, Tracking Technologies, Programming, and Training optimizes driving for an individual

Next steps:
- Work with your supplier and manufacturers for further inservices, product and client evaluation!
- Contact your local reps to try out some of this awesome technology!
- Drive!
- Identify potential clients and evaluate and/or refer!

Resources:
- www.allange.com
- Under Resources:
  - Indoor Power Mobility Criteria
  - Pre-Mobility Training Guidelines
  - Mobility Training Guidelines
  - Complex Rehab Power Wheelchair Electronics Comparison Chart

One More Resource…
- Seating and Wheeled Mobility: a Clinical Resource Guide
  - Edited by Michelle L. Lange, OTR/L, ABDA, ATP/SMS and Jean L. Minkel, PT, ATP
  - Available from SLACK, Inc.

Questions?

Thank You!
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