Navigating Differently:

Alternative Drive Controls: Navigating Differently

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Learning Objectives

- Participants will be able to list methods to improve driving skills through standard set up prior to considering alternative driving systems
- Participants will be able to differentiate different driving systems for powered wheelchairs and list the benefits for different client groups
- Participants will be to list 2 considerations for additional functions of alternative driving systems

Alternate Drive Controls – What and Why?

Standard Drive System

- R-Net and Q-Logic
- Proportional control
- With standard joystick / modified joystick
- Mounted on armrest/ other suitable locations
- Expandable vs Non-Expandable
- Function controls on the controller / Easy access

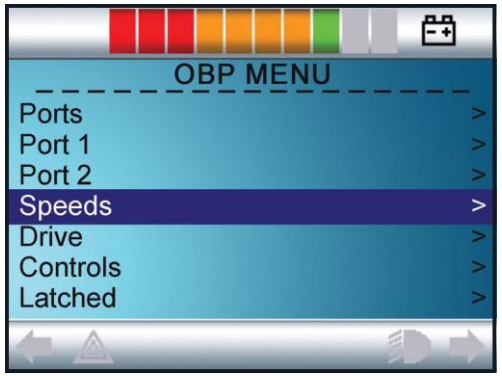
Physical requirements:

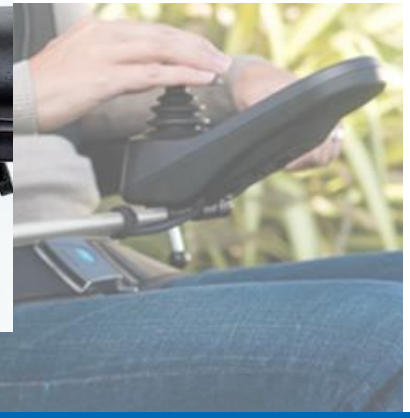
- Sufficient UL movement and fine motor control
- Ability to sustain force
- Joystick placement

Alternate Drive Controls – What and Why?

Adjustability within this standard system:

- Programming (Speed, Acceleration, Active Throw, Dead Band, Tremor dampening, Active Orientation)
- Joystick Handles
- Mounting systems
- Access buttons





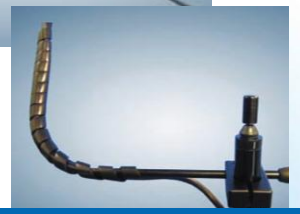
Alternate Drive Controls – What and Why?

Alternate Drive Systems

- Different sources of control
- Placement of systems
- Would require additional control interface

- Why use an alternate drive system?
  - To accommodate for client's needs/ability to drive
  - Better posture / access to support endurance

https://www.numotion.com/products-services/innovative-lifestyle-products/ability-drive#overview



Assessment Process for Alternate Drive Controls:

- Physical Abilities
  - Available Movements (ULs / Head/ Oral)
  - Vision
  - Postural Stability and Displacement
  - Prognosis and impact on abilities
- Wheelchair requirements
  - Power Functions
  - Drive wheel location
  - Communication devices
- Access
  - Environment use
- Cognition / Perception
  - Ability to learn
  - Good safety awareness
  - Problem-solving
  - Spatial perception/awareness
- Carer Requirement
  - Ability to manage complex systems
  - Transfers / daily activities in wheelchair

Alternate Control Drive System - Based on Consistent Movement Patterns

Good / Fair Gross Motor Control, Limited Fine Motor

- **Switch (4) / Proximity Switch**
- Single Switch scanning (single body site)
- CoMove It

JSC for foot drive (FCMH)

JSC for arm drive (ACMH)

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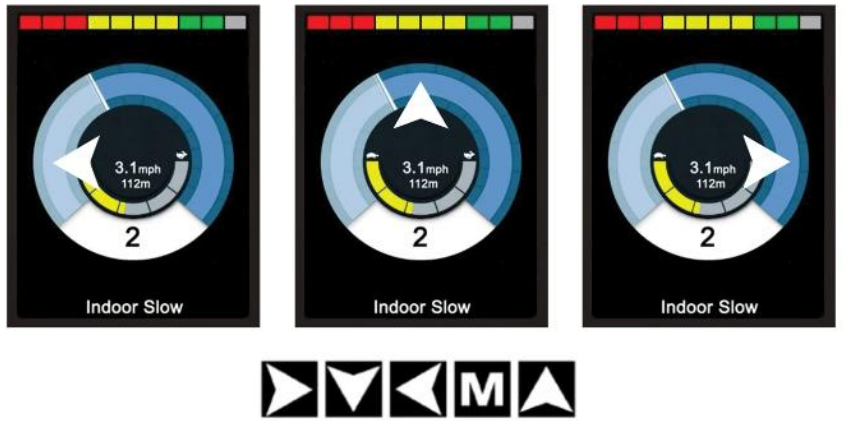

https://hub.permobil.com/blog/alternative-drive-controls-single-switch-scanning-eye-gaze

Alternate Control Drive System - Based on Consistent Movement Patterns

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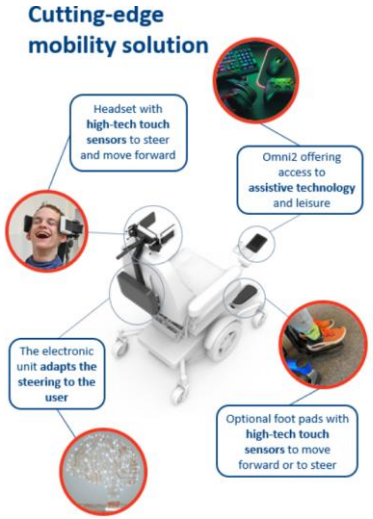

Alternate Control Drive System - Based on Consistent Movement Patterns

Good Fine motor, Limited Gross motor

- Mini and Micro- Switches
  - Significantly lesser amount of force for displacement (~10-50g)
  - Multiple mounting options

Alternate Control Drive System - Based on Consistent Movement Patterns

No UL, Good Head Control

- **Chin control (micro switches)**
- Gyro systems (Vigo and Munevo Glasses)
- Head Controls (proportional vs Head array)

Alternate Control Drive System - Based on Consistent Movement Patterns

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https://www.sunrisemedical.com/power-wheelchairs/switch-it-electronics/head-controls/vigo

Alternate Control Drive System - Based on Consistent Movement Patterns

No UL, Good Head Control

- Chin control (micro switches)
- Gyro systems (Vigo and Munevo Glasses)
- **Head Controls - Switched Head array (Permobil total control, Switch-it Duo Pro, ASL Fusion, Stealth i-Drive)**

SUNRISE MEDICAL Dual Pro™

SWITCH-IT

Stealth Products®

i-Drive® Head Arrays

Alternate Control Drive System - Based on Consistent Movement Patterns

Fair Head Control, Limited Extremity control

- **Switched Head Array**
- Munevo Glasses

Considerations:

- Head supports required
- Endurance
- Increased adjustments to profiles to reduce postural displacement

Alternate Control Drive System - Based on Consistent Movement Patterns

Little head control,
Good oral control

- Sip n Puff, Combination

Alternate Control Drive System - Based on Consistent Movement Patterns

Minimum head control, good eye gaze control

- Eye Gaze

Mounting Systems

Setting up the most ergonomic position of drive method to ensure endurance and ease of use

Considerations for carer staff:

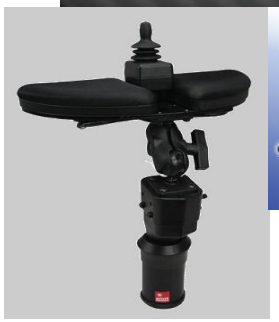
- Ease to remove/replace
- Adjustments required
- Durability

Mounting Systems

Tray mounted Systems

Arm rest mounts

Center Drive System / Mounts



ACTIVE CONTROLS

Chin Control / Head Array mounts

Recommendation

"The factors identified in research related to non-use of provided assistive technology (as listed) should be considered by the therapist during the wheelchair prescription process, as these may influence the outcomes."

https://www.aci.health.nsw.gov.au/__data/assets/pdf_file/0003/167286/Guidelines-on-Wheelchair-Prescription.pdf Page 25

Questions?
Please come and try out the systems!

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