# Alternative Drive Controls: Giving Powe to the Masses

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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

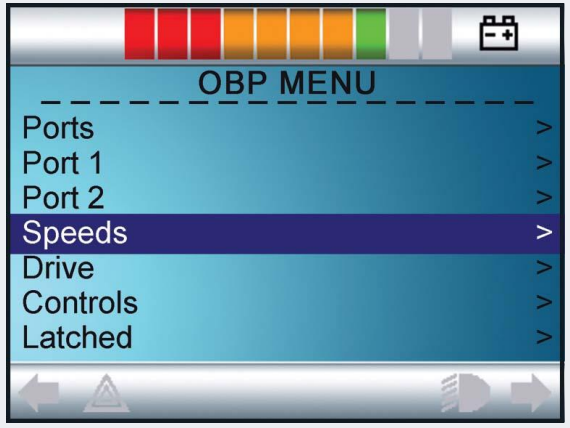
## Physical requirements:

- 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?

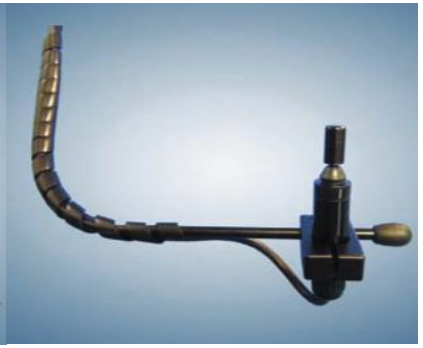
## Alternate Drive Systems

- 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

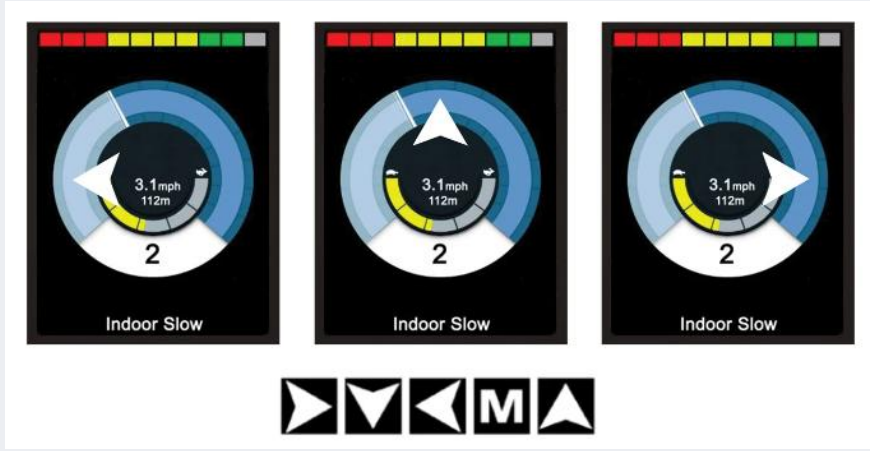
- **Switch (4) / Proximity Switch**
- Single Switch scanning (single body site)
- CoMove It


JSC for foot drive (FCMH)

JSC for arm drive (ACMH)

# Alternate Control Drive System - Based on Consistent Movement Patterns

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




## Good/Fair Gross Motor Control, Limited Fine Motor

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

https://www.youtube.com/watch?v=UAudjSUYYDo

# 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**

# 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

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

## 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

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™

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:

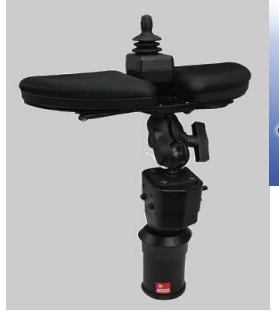
- Ease to remove/replace
- Adjustments required
- Durability

# Mounting Systems

Tray mounted Systems

Arm rest mounts

# Center Drive System/Mounts

ACTIVE CONTROLS

https://activecontrols.com/info/cds

# 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

# You made it!

## Questions?

Please come and try out the systems

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