



Hamilton Health Sciences

Power Mobility and Seating for the Client with ALS...the earlier the Better!



Hamilton Health Sciences

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Learning Objectives

Upon completion of this workshop participants should be able to:

1. List several key components of power mobility & seating systems indicated for the client with ALS.
2. Critically compare power mobility and power seating systems with respect to the identified key components.
3. Recognize the importance of multidisciplinary team approach to the prescription of the required seating mobility system for the client with ALS.



AGENDA

1. What is ALS?
2. Timelines for equipment prescriptions
3. Review of recommended components in Power wheelchair and seating systems
4. Clinical comparison of power wheelchair systems.
5. Multidisciplinary team approach
6. Case Studies
7. Re-evaluation



What is ALS?

- Amyotrophic Lateral Sclerosis
- Lou Gehrig's disease
- Neurodegenerative disease affecting upper & lower motor neurons
- Neurons die off and can no longer send messages to muscles
- Muscle atrophy and immobility
- Affects Respiratory control



What is ALS?

- Cause is unknown
- Less than 10% familial onset
- 90% Sporadic
- 5/100 000 people
- More common in 50+ population – although incidences in younger population do occur





What is ALS?

Limb onset

- **Cervical-onset**
 - Upper motor neuron
 - Upper limb(s)
 - fasciculations
- **Lumbar onset**
 - Lower motor neuron
 - Lower limb(s)
 - fasciculations

Bulbar onset

- upper or lower motor neuron
- Affects oral motor control
- Dysarthria
- Difficulty swallowing
- Excess secretions
- Fasciculations in the tongue



What is ALS?

- Average life span from symptom onset – 3-5 years
- Assisted ventilation may prolong life span
 - Non-invasive ventilation:
 - Night time or 24/7 Bipap or C-pap
 - Daytime Sipping Ventilation
 - Full time invasive Ventilation



When to start Power Mobility Assessment?

Trail et al:

- PWC purchase 2.1 years from symptom onset

Ward et al:

- **45% of respondents able to walk a few steps and 55% were able to stand when they received their PWC**
- Average time from initial symptom to PWC use 36 months
 - 66% believed timing "just right"
 - **19% thought they should have started earlier**



When to start Power Mobility Assessment?

- The sooner the better!
- Start in the earlier stages of the disease process
- Start when the client is dealing with fewer losses
- Start when the client is capable of joystick control
 - Improved transition to alternate drive controls



When to start Power Mobility Assessment

Client with ALS explains his current level of mobility and how the PWC enhances that independent functional mobility.

ALS video



Package



When NOT to start Power wheelchair Assessment

- Frontal Lobe Dementia
 - Approximately 10%
- Fast rate of decline
 - Consult with physician
 - Do they have 6 months?
 - Do they wish breathing assistance?
 - "NO" – this may impact prognosis and manual wheelchair may be more indicated
- Client preference
- Environmental barriers



Power wheelchair components

- **ADP Type 3** - MWD power base with suspension
- Upgraded electronics
- Auto correction system
- Attendant Control joystick
- Respiratory equipment interface



Power wheelchair components

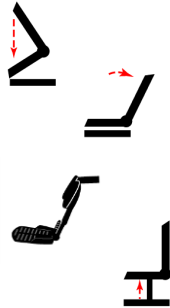
Changing drive controls:

- Joystick to allow for upgraded electronics
- MEC
- Mini
- head array
- Single switch scanning
- Foot control



Dynamic powered seating components

- Power tilt
 - Set with Anterior tilt
- Power Recline
- Power elevating leg rests
- Power seat elevators
- Access to power seating



Postural Seating Supports

- Rehab curved back
 - Upgraded foam with added lumbar support
 - Track mounted swing away laterals
- ROHO & bolster or ROHO Hybrid
 - Comfort greater need than pressure reduction



- Wide arm pads with elbow stops - various lengths
 - Multi-track
 - Gel or foam
- Padded Head rest - multi-axis hardware
- 4-point positioning seat belt
- Chest harness - for travel or security



Clinical Comparisons of power mobility systems

	Permobil	Quantum	Invacare	Quickie
Bases	FWD - C300 or C500	Q-6000z	TDX-SP	Experience
Auto-correction	ESP	Accutrack	G-Track	Intellidrive
Drive Control	All systems have proportional joystick and ability to interface with alt. drive controls			
Electronics	<ul style="list-style-type: none"> •R-Net •Mouse emulation •Blue tooth •IR (omni display) 	<ul style="list-style-type: none"> •Q-Logic •Blue tooth •IR •Mouse emulation (Enhanced display) 	<ul style="list-style-type: none"> •Invacare •Blue tooth •IR •Mouse emulation (Display) 	<ul style="list-style-type: none"> •R-Net •Mouse emulation •IR •Blue tooth (omni display)
Resp Interface	To run Resp equipment off w/c battery - Requires a step down converter to convert 24v to 12v to power the resp equipment. Or consider options for 3 rd battery placement (i.e. Quantum)			



Clinical Comparisons of power mobility systems

	Permobil	Quantum	Invacare	Quickie	Motion Concepts
Powered seating	Corpus or Corpus 3G	Tru Balance	Invacare – Formula	Amy systems	TRX
	All systems have power tilt, recline, power elevating leg rests				
Anterior tilt	5 degrees	Available with Concepts only	Available	Custom	Available - TDX
Memory Seating	Available	Available	Available	Available	Available



Team Approach

Interface Power wheelchair with:

- Respiratory systems – work with RT
 - Sipping ventilation
 - Bipap
 - Full ventilation
- Communication – Work with SLP/OT
 - Mounting of devices
 - Positioning for access to devices
- ECUs – work with rehab engineers
 - Extra switch placements required
 - ECU Box on w/c



Case Studies #1

- 42 year old female – mother of four diagnosed June '10
- First symptoms Nov'09
- Power w/c assessment April '11
 - TDX – SP
 - MPJ joystick
 - Power tilt/recline/power elevating



Case Study #2

- 48 year old male
- Diagnosed with ALS approximately 2010 with symptom onset 1.5 years prior
- First seen in Aug'10 delayed with PWC assessment due to environmental barriers
- Initial set up with both joystick and ASL head array for fatigue management in Invacare TDX-SP





Case Study #3

- 60 year old male with Familial ALS
- First symptom onset and Diagnosis in April 2009
- 2 siblings died of ALS
- LE's stronger than UE's
- power w/c Assessment April '11
 - with foot control -
 - Invacare TDX SP
 - Rehab curved back
 - ROHO Hybrid
 - Resp interface for Bipap



Case Study # 4

- 55 year old male
- Diagnosed with ALS in Jan'09 with first onset of symptoms 1.5 years prior
- Presented with:
 - UE & LE weakness
 - Dysarthria
 - Muscle fasciculations
- PWC assessment
 - July '09
 - Delivery in Jan '10
 - Delayed delivery due to home access barriers



Case Study # 4

- Quickie Experience
 - Center mount foot plate with positioning strap
- Amy Power Tilt only
- Action Xact Soft cushion
- Matrix Full Back with upgraded foam and laterals
- Stealth med. Headrest with multi-axis hardware
- 2 point seat belt



Case Study # 5

- 45 year old male
- Diagnosed Nov 2007
- Symptom onset 6 months prior
- CCAC OT completed PWC assessment Fall '09 -
 - Quantum 6000
 - Joystick
 - Mouse emulation
 - Communication device
- March '11 added ASL head array secondary to declining hand function - uses both drive controls.



Ongoing Evaluation

- Client's functional needs change as the disease process progresses
- Every client changes at different rates
- Ongoing evaluation of a client's PWC is required to ensure it continues to meet all required mobility and postural needs.



**Thank you.....
Any Questions?.....**



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