


STARTING OVER

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M. Lange 12/2020

What we will be covering today:

- A case study illustrating positioning, access, and AT applications with a young adult who has not been successfully using his technology for some time.

Case Study


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Case Study

- 'Tom'
- The issue:

Tom has successfully used a communication device and power wheelchair in the past, but has that was several years ago

Re-evaluation and ongoing intervention were needed to provide a re-start and restore functional communication and mobility



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Tom

• Background information:

- Age: at time of initial evaluation, 19 years old
- Diagnosis: cerebral palsy
- Functioning
 - He cannot sit independently
 - He is non-verbal
 - Vision is good, wears glasses
- He had been seen for CRT needs at another clinic for several years and transferred to our clinic, mainly for augmentative communication support
- He has a large amount of equipment



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Initial Evaluation

• Goals:

- To determine optimal positioning in the power wheelchair
 - To determine and optimize power wheelchair driving abilities
 - To discuss other goals to be addressed at future appointments
- Initial evaluation spanned 2 appointments

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Seating Evaluation

Review current equipment



Assess current position in that equipment



Mat exam



Equipment recommendations

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Current Equipment

- Permobil C300 power wheelchair with right mounted joystick
- Matrix Libra cushion with gel pad under his ischial tuberosities and asymmetrical length
- Corpus back at mid-scapula height, lateral supports (left broken), shoulder straps
- Whitmyer Heads Up head support
- Lateral hip and thigh supports
- Other equipment was addressed at future appointments



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Current Positioning

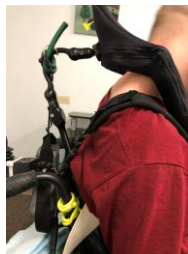
- Pelvis
 - Rotated (right side forward)
 - Tends to scoot to his left side, but is blocked by a lateral pelvic support
 - Posterior pelvic tilt
- Cushion is too long on the left side and pulling him forward
- Gel pad under ITs is allowing too much movement



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Current Positioning

- Trunk leaning to right side
 - Right lateral could not be moved in due to hardware limitations, but needed to come in about 3"
 - Tom is putting a great deal of weight on this support which could lead to breakage
- Back too short
 - Shoulder straps are pulling him down, rather than back
 - Back contours do not match Tom's contours and do not allow more precise placement of the lateral pads



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Current Positioning

- Head
 - tends to hang forward
 - Leaning against this with the right side of his neck due to the lack of trunk support on this side
- Significant extension throughout
- He moves his head up and down with enough force to rock the entire PWC back and forward



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Mat Exam

- Examined in supine and sitting on the edge of the mat table
- Spine
 - lordosis, lateral scoliosis, kyphosis
- Hips
 - Only 110 degrees of flexion at the left hip
 - He can sit more upright if the pelvis is rotated
 - Left leg shorter than the right



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Mat Exam

- Skin
 - Multiple pressure injuries at coccyx (most likely due to posterior pelvic tilt)
 - Persistent redness on the left posterior trunk, next to the spine
- Tone
 - Significant extension throughout



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Dynamic Seating?

- Tom would benefit from a Dynamic Back to diffuse his forceful extension
 - Protecting him from significant forces being exerted through his joints
 - Protecting equipment from damage
 - Maintaining his posture
- However...
 - He uses a power recline to allow changing out in the community
 - Dynamic backs are not compatible with reclining backs



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Seating Recommendations

- After assessment of current equipment, position in the equipment, and the mat evaluation, we discussed options and made the following recommendations:
- Ride Designs Custom cushion
 - To provide adequate postural support
 - To provide adequate pressure distribution
 - To maintain stability
 - Molded to him
 - 'Cantels' collapse during recline



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Seating Recommendations

- We also recommended a Ride Designs back
- This is molded to him to provide better contact with his curvatures, providing support, pressure distribution and stability



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Seating Recommendations

- Tom already was using an Aspen Seating Orthosis (ASO) molded seating system in his manual wheelchair successfully
- The ASO is made by Aspen Seating / Ride Designs
- The ASO could not be used in the PWC as it cannot be used with a full recline
 - This one-piece system cannot recline to that degree
 - The more intimate contours would lead to shear forces



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Seating Recommendations

- One more challenge:
- The previous team who had evaluated Tom was unable to get funding approval for a new seating system in the PWC
- Why???
- Because he couldn't drive it
- So, I needed to get him driving
- Mom primarily uses the PWC as it is too difficult to push the MWC in the community due to total weight and because the MWC does not recline for diaper changes

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Power Mobility Evaluation



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Current Equipment

- Permobil C300 power wheelchair with right mounted joystick
- Power tilt, power recline



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Current Mobility

- Current Driving:
 - Tom currently uses a right mounted joystick with a golf ball handle to drive his power wheelchair
 - During the evaluation, Tom was able to drive forward and reverse using the joystick. He had much more difficulty making turns in either direction. He also did not appear to notice that he was too close to obstacles and failed to stop.



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Joystick Driving

- So frustrated!



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Mobility Evaluation

- Tom was able to directly access small locations on his communication device.
- Watching him access the communication device, I would think he would be able to control the joystick.
- He is either having difficulty controlling the joystick or is having other difficulty driving.
- This could be due to inadequate vision for the task or that Tom is hesitant to drive. He may be hesitant due to fear of not performing well, fear of hurting himself or others, or even that he has inadequate vision.
 - I recommended the family gently discuss this with Tom in an attempt to clarify this.

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Mobility Evaluation

- We saw Tom for a second appointment
- We placed additional electronics on his PWC to allow us to evaluate switches as a driving method
- We placed 3 AbleNet Specs switches at the bottom of his communication device (facing him, right under the display) for Forward, Left, and Right directional control
 - Tom was able to activate these switches, but was very reluctant to drive
 - Loaner equipment was found, mounted and a mobility training program developed



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Switches, round #1



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Why the change in Driving Method?

- Although Tom had adequate fine motor control to directly access his communication device, I was not convinced he could control the joystick in a proportional manner
 - 360 directional and speed control
- I thought it may be easier to determine if Tom understood how to drive by starting with switches
- Our initial placement was right at the bottom edge of his communication device, as this would require a similar movement to what he was already using for direct access to the communication device

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And now we wait...

- Funding approval took a long time
- The funding source asked for additional information, as Tom was still not independently driving his PWC
- Funding for the new seating was eventually obtained
- Yeah!



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New Seating


- Results:
 - Tom received the new Ride Designs seat and back
 - He looked great!
 - We did have issues with the mounting of the back. His strong extension was rotating the back, leading to a loss of position.



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Switches, round #2


- We were trying to figure out how to mount switches for him to continue practicing while waiting for his tray



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Mobility Revisited


- Once Tom was in his new seating, we evaluated mobility once again
- The joystick was still challenging for him to control for functional mobility
 - He could move it, just not where he wanted to go!
- We tried placing the switches flat on a tray, rather than on the bottom of the communication device.



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Mobility Revisited

- Tom immediately drove with very good control and a willingness to drive!
- Eventually, 5 switches were placed on the tray for Forward, Left, Right, and Reverse directional control, as well as direct control of the power tilt system
- We believe his previous reluctance was due to difficulty accessing the switches due to his prior seating



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Mobility Revisited

- He is using his right index finger
 - Finger isolation is facilitated by his splints
- He is using 5 AbleNet Specs switches
 - Lots of Velcro to allow use to 'play' with the final position of each switch



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Mobility Recommendations

- The required electronics were approved and ordered for the current PWC
- Although the PWC is older, it is functional and did not require replacement

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In the meantime...

- We also evaluated the Manual Wheelchair (Quickie IRIS tilt) and ASO (Aspen Seating Orthosis)
- Dynamic Back and Dynamic Footrests were recommended for this frame
- ASO modifications were completed
 - Thoracic area widened
- A new manual wheelchair was not required



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In the meantime...

- We evaluated Tom for Sleep Positioning and made recommendations
- Providing as symmetrical a posture as possible during sleep provides a prolonged stretch to minimize progression of orthopedic changes and range loss



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Access for Communication

- During this time, Tom was able to access his communication device using his right index finger to directly activate locations.
- However, due to his positioning in the PWC, his access was limited
- The new positioning optimized his ability to access the communication device



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Direct Access

- <https://fb.watch/1JjroJe7xn/>

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Communication

- Tom is rocking it!

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Communication

- He was very excited to return to therapy after missing several months due to the pandemic!

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Communication

- He also is followed through Telepractice with Jill Tullman! It helps when you are working with someone who is so motivating!!!

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[illegible]

Control!

- Tom also uses his communication device with Alexa!



Control with Alexa

- <https://www.facebook.com/216509381769580/videos/2985174581499068>

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Take Home Message:

- It is never too late to Start Over!
- Our clients change
- Positioning is foundational
- Re-igniting motivation!
- Perseverance!

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Thanks!

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Questions?

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