

Client: Jonathan

PT/OT/Supplier: Lindsey Rea, ATP, Numotion and Michelle L. Lange, OTR/L, ATP/SMS

Location: Colorado Springs, CO

Jonathan is a 23 year old man with the diagnosis of cerebral palsy. He lives at home and attends a day program. He is on tone reducing medications, though displays significant extensor tone. Despite his spine being fused, he also has significant residual spinal extension. He has a Aspen Seating Orthosis molded seating system to help maintain his overall posture.

Neck Extension

Jonathan's first dynamic component was Dynamic Head Support Hardware. He extended his neck with such force that he would push his trunk off the surface of the back and remain in neck hyperextension. This hyperextended position increased his risk of aspirating his secretions and resulted in him primarily looking up at the ceiling. He also broke the static head support hardware multiple times. The head support constantly became loose and required adjusting.

Seating Dynamics hardware was placed on the Quickie IRIS manual tilt wheelchair, however Jonathan initially continued to push into hyperextension (see Figure 1). The elastomers were changed to increase resistance and the head support hardware was adjusted. As a result, Jonathan was able to maintain a neutral head alignment and move into some extension without hyperextending his neck (see Figure 2). He also has no longer experienced equipment breakage of the head support and mounting hardware and the head support remains in the correct position.

Head position is also key to Jonathan's communication. He uses a switch mounted by the left side of his head to access his speech generating device. Now that he can maintain his head position, he is able to activate this switch consistently.

Figure 1:

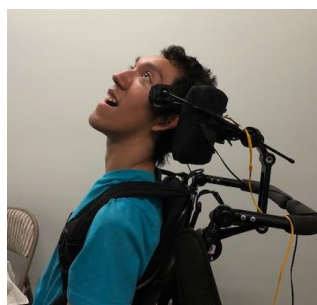


Figure 2:



Quick Notes

Challenges:

- ✓ Extension
- ✓ Equipment breakage
- ✓ Potential aspiration
- ✓ Potential injury
- ✓ Access

Areas affected:

- ✓ Back
- ✓ Legs
- ✓ Neck

Equipment Used:

- ✓ [Dynamic Rocker Back](#)
- ✓ [Dynamic Footrests](#)
- ✓ [Dynamic Head Support](#)
- ✓ [Aspen Seating Orthosis](#)
- ✓ [Sunrise Medical Quickie IRIS](#)

Dynamic Back and Footrests

Jonathan was seen by Michelle Lange after receiving the Dynamic Head Support Hardware. Although this dynamic component was helping, Jonathan still exhibited forceful extension through his hips and knees. A Dynamic Back and Dynamic Footrests were considered. During the evaluation, a Dynamic Back was 'simulated' to determine if this may be beneficial for Jonathan. Jonathan was placed in a seated position on the edge of a mat table with the therapist behind him for support. He was allowed to extend at the hips (approximately 10 degrees) until his tone relaxed and then the therapist slowly brought him back to a neutral starting position (see Figure 3). As this was successful in simulation, a Dynamic Rocker Back interface (DRBi) was recommended.

Figure 3:



Dynamic Footrests were 'simulated' during the evaluation by swinging the footrest hangers away to the sides of the wheelchair. Not able to leverage off the footplates, Jonathan demonstrated reduced lower extremity extension. As a result, Dynamic Footrests were recommended, as well. He required the telescoping and elevating features. He does not require dynamic dorsi / plantarflexion as he wears AFOs.

Results

Jonathan enjoys this new movement. Overall, he is staying in better contact with his molded seating system, rather than moving in relation to these surfaces as he used to do. He has not broken any components since receiving this equipment. Jonathan appears to be more relaxed and his body is quieter. And, he can communicate better using his switch to access his speech generating device. We hope to evaluate Jonathan for power mobility soon.

Lindsey Rea, ATP
Numotion
Colorado Springs, CO

“When we first provided the dynamic headrest, he was so strong that he was able to push the headrest back and then was stuck in extension. This was a concern for swallowing. When Greg Peek came for a service call, he repositioned the links of the dynamic headrest hardware to eliminate interference with the push handle and changed the elastomers so that while they were strong enough that he could push back, the resisting elastomers were stronger to bring his head back into neutral.”

About the Author

Michelle is an occupational therapist with 30 years of experience and has been in private practice, Access to Independence, for over 10 years. She is a well-respected lecturer, both nationally and internationally and has authored numerous texts, chapters, and articles. She is the co-editor of Seating and Wheeled Mobility: a clinical resource guide, editor of Fundamentals in Assistive Technology, 4th ed., NRRTS Continuing Education Curriculum Coordinator and Clinical Editor of Directions magazine. Michelle is a RESNA Fellow and member of the Clinician Task Force. Michelle is a certified ATP, certified SMS and is a Senior Disability Analyst of the ABDA.

