

Client: Derrick

Clinician: Jill Sparacio, OTR/L, ATP, ABDA

Location: Chicago, IL

Derrick is a 42 year old male who resides in a group home with 24 other non-ambulatory, yet socially active, adults. Derrick is primarily a power wheelchair user; however he relies on a manual mobility base for use in the community. His power wheelchair does not fit in the van's tie down system and so this is not an option for community use. His community outings include social opportunities (i.e. visiting restaurants, attending sporting events, shopping) and medical appointments. While in his manual system, Derrick remains dependent in mobility. This has always been a frustration to him, however he gains so much enjoyment from the community outings that he is willing to compromise.



Extension and Movement

Derrick's diagnoses include athetoid cerebral palsy, choreoathetosis, and cognitive limitations. Medically, Derrick is followed by a physiatrist who closely monitors his medications for tone and movement management. Physically, Derrick presents with fluctuating tone throughout his trunk and extremities and his extensor patterns dominate during any attempt at volitional movement and communication. This extension is observed in his hips, trunk and head/neck position. His athetoid movement patterns present with great force and strength.

Equipment Breakage

Derrick has broken numerous wheelchair components from his repetitive tonal-driven movement. To help alleviate this, some dynamic components have been used in the past. His seating has also been modified numerous times to help control this movement. The use of aggressive, total contact seating components has had limited success. Derrick's extension pattern tends to initiate in his hips and his upper trunk and neck, with increased extension through his cervical spine. Dynamic headrest hardware has been utilized to allow the headrest to extend with him. If his extension is met with rigid resistance, he is able to use it as a pivot point to further fire his extensor tone. The dynamic headrest hardware was effective; however, it did not impact the extension that initiates in his hips. This movement has been very destructive on his wheelchair frame, causing undue stress and maintenance issues. In the past, Derrick's manual systems have experienced numerous sheared side frames from this movement. In order to provide Derrick with a mobility base that will hold up to his tone and movement patterns, a dynamic component at his hips was needed.

Quick Notes

Challenges:

- ✓ Equipment Breakage
- ✓ High Tone
- ✓ Extension
- ✓ Pain & Tolerance

Areas affected:

- ✓ Head
- ✓ Back
- ✓ Trunk
- ✓ Knees
- Feet

Equipment Used:

- ✓ [Dynamic Rocker Back](#)
- [Dynamic Footrests](#)
- [Static Footrests](#)
- [Dynamic Head Support](#)
- [Static Head Support](#)
- [Spreader Mount](#)



At the time of Derrick's manual system evaluation, several needs were identified. Of utmost importance was his need for a system that was durable and reliable. Funding for repairs is not always available. If Derrick's system is broken, he misses outings from which he gains a great deal of enjoyment. While waiting for approval for a new wheelchair, his existing wheelchair completely fell apart and there was nothing to salvage. There are no "before" photos because of this system failure. In looking at his movement patterns, it was also determined that a dynamic component to the base was needed to help absorb the movement energy created by his strong hip extension. In researching manual base options, the Degage APB 5000 manual wheelchair was the only option that offered a dynamic seat-to-back junction, the Dynamic Rocker Back*. This base offered the necessary tilt in space that Derrick relies on for additional positioning support. As Derrick extends at his hips, the movement of the base eliminates solid resistance. Instead of his movement and tone increasing (as it does with solid resistance), his movement was now facilitated, allowing his tone to calm down.

Posture

Seating has always been difficult with Derrick due to his tonal patterns, however this evaluation showed that if the dynamic component could successfully be incorporated into his base, the stress on his seating would be lessened. For his seating, it was determined that an extra firm Pindot Silhouette seat and Invacare Personal back would meet his needs. Through the SeatMaker software, additional lateral and medial thigh support could be gained, giving Derrick a good base of support. The foam-in-place process in the Personal back would allow for customization, as needed. These seating components are less aggressive than previous systems. The expectation remains that the dynamic component of the base will better manage his tone, rather than relying on static seating.



Once all components were available, it was found that Derrick received proper support and alignment for his postural needs. The base offered dynamic postural assistance in the area that was most beneficial: his seat-to-back angle. When Derrick actively moved, his tone pattern initiated in his hip extension. As he extended, the rear canes extended with him. Since solid resistance was not received, his extensor pattern could not fire any more.

Instead of firing, his hips were observed to land back in his seat, maintaining the desired position. The use of the Dynamic Rocker Back was successful in providing postural assistance to his active tone patterns.

Jill Sparacio, OTR/L, ATP/SMS Downers Grove, IL

"The Dynamic Rocker Back option offers a dynamic seat-to-back junction. As Derrick extends at his hips, the movement of the base eliminates solid resistance. Instead of his movement and tone increasing (as it does with solid resistance), his movement was now facilitated, allowing his tone to calm down. The use of the Dynamic Rocker Back was successful in providing postural assistance to his active tone patterns. Of utmost importance was his need for a system that is durable and reliable. Funding for repairs is not always available. If Derrick's system is broken, it results in him missing outings from which he gains a great deal of enjoyment."

Results

Use of the new Degage APB 5000 manual wheelchair* with Dynamic Rocker Back and seating components has allowed Derrick to participate actively in community outings. Derrick is now able to participate in his vocational art program without issues related to his mobility. The use of the dynamic back component has provided him with increased tone management. It has also resulted in less aggressive seating needs. Proper positioning is maintained after his tone fires, eliminating

the need for frequent repositioning due to his tone patterns. In more than 3 months of use, the Degage system has not developed any repair issues.

Here is an update from Jill received January 28, 2009, 18 months after Derrick received his APB 5000 with the Rocker Back:

Greg,

Thanks for contacting me. Derrick is doing absolutely great in his system. He essentially has no problems. We go months without seeing him in wheelchair clinic as there are no repair needs as of yet. He actually will stop by just to say hi.

So, so far, so good. His tone remains controlled, posture is good, no issues.

Jill

**At the time of the initial evaluation, the Dynamic Rocker Back was only available on the Degage manual wheelchair. The Dynamic Rocker Back interface is now available on many manual and power wheelchair frames.*



About the Author

Jill Sparacio is an Occupational Therapist in private practice with over 30 years' experience. She provides OT services to children and adults with intellectual disabilities and medical fragility specializing in seating and wheeled mobility. Jill presents the clinical application of seating and wheeled mobility throughout North America and internationally. She is a member of the Clinician Task Force and has been actively involved in funding and delivery issues on the state and national levels.