

**Client:** Oliver

**PT/OT/Supplier:** Missy Ball, PT, MT, ATP

**Location:** Metairie, LA

Oliver is an adorable 5 year old male born at 40 weeks with forceps delivery due to transverse presentation in birth canal per his mother, Jessica. Approximately 3 weeks after delivery he became very lethargic. Waking him would result in him screaming until he fell back asleep. Concerned, the parents brought him to the ER where, after several hours of tests and examination, it was discovered he was in status epilepticus. He was having multiple seizures all over the brain simultaneously without any outward symptomology. He was admitted 1/2017 and placed in a drug induced coma for about 2 weeks while several seizure medications were tried, including Phenobarbital and Ativan, to minimize seizure activity. The first MRI was done the second day in the hospital with evidence of subdural hematoma attributed to birth trauma. 1.5 weeks later another MRI showed significant brain volume loss with “large areas of cortical diffusion and bilateral parieto-occipital subdural collections and parenchymal volume loss.” A Barium swallow was negative for aspiration. He was discharged 31 days later on Clobazam, Levetiracetam, and Perampanel - none of which fully controlled his seizures. In the hospital discharge summary he was diagnosed with epilepsy, spastic quadriplegia, cortical vision impairment, and hypothyroidism.

Oliver was referred to the Early Steps Program where the Batelle Developmental Inventory 2nd Edition (BDI-2) was performed (3/10/2017) with significant deficits noted in physical, cognitive, and social-emotional areas (at least 1.5 standard deviations below mean). PT and OT were initiated and continued until he reached 3 years of age and was no longer eligible for this program. He is currently taking Topiramate and Levetiracetam and has not had a seizure in several months. He is currently in a homebound preschool program where he has PT, SLP, OT, and an APE teacher weekly. He also attends outpatient physical and occupational therapy where he has sessions in a Therasuit and frequently works in a spider cage with cables attached for resistance. His overall tone is hypotonic with a mix of spinal and hip extension at times when rolling, sitting, and standing. Therapy includes core work, and transitional movements in and out of sit and standing with and without TheraSuit.

### Movement and Increased Postural Control

While working with Oliver in Early Steps, I recommended and procured the Zing MPS standing frame and the Rifton Activity Chair with dynamic back to provide **postural support, facilitate good skeletal alignment, and aid in GI elimination**, as he had constipation issues. A Rifton gait trainer with seat, chest support, and arm prompts to encourage movement in a standing position was also procured. The activity chair was a hit – Oliver loved it! **I noticed improvements over time in head and trunk control and some sitting balance and righting responses, as well as fine motor engagement.** Parents also found the activity chair helpful with feedings.



### Quick Notes

#### Challenges:

- ✓ Extension
- ✓ Abnormal postures
- ✓ Low tone
- ✓ Muscle Weakness

#### Areas affected:

- ✓ Back

#### Equipment Used:

- ✓ [Dynamic Rocker Back](#)
- ✓ [Dynamic Footrests](#)
- ✓ [Static Footrests](#)
- ✓ [Dynamic Head Support](#)
- ✓ [Spreader Mount](#)
- ✓ [Freedom Designs NXT Wheelchair and Seating](#)

Prior to receiving this chair, Oliver would use spinal & hip extension while in his infant bouncer to push off the wall with his feet. He used a similar strategy to rock himself in a small rocker chair or move the mobile figurines which were attached to the chair. So, Oliver incorporated this behavior into the Rifton Activity Chair. **He often uses spinal and hip extension to facilitate this dynamic movement.**

## Movement and Digestion

The standing frame coupled with the dynamic back on the Rifton activity chair had an additional benefit. Constipation had been an issue. **Gravity, standing, movement and muscle contractions help the bowels move.**

## Movement and Maintaining Posture

Oliver often engages the dynamic back while moving, singing, or laughing. When Oliver is moving in his activity chair, he is opening his hip angle extending the abdomen, then **the dynamic back returns his pelvis and spine to the original position** (with abdominals activating at times).

## Dynamic Seating and Increased Muscle Strength

As ambulation has not been achieved yet, seated mobility was discussed, and the Freedom Designs NXT with Seating Dynamic's Dynamic Rocker Back interface was recommended and procured to allow and promote his spontaneous, dynamic movement.

One last point, I noticed that movement against low resistance on dynamic backs of both the activity chair and the wheelchair system was possibly **increasing Oliver's muscle strength** (this was noted in *Effects of dynamic seating on spasticity & functional mobility in children*. Hahn, M. PhD, Journal of Musculoskeletal Research, Vol 12 No.1 (2009) 21-30).



*Oliver in his new manual wheelchair with Dynamic Back*

**Missy Ball, PT, MT, ATP**  
**PhysioBall Therapy, LLC**  
**Metairie, LA**

“Seating Dynamics has excellent dynamic products that are compatible with many frames. In my experience, the dynamic back and footrests have prevented frame damage, allowed for extension of the client

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## About the Author

Missy Ball is the former Acting director and Assistant director of the Physical Therapy Department at Children's Hospital in New Orleans. She was the co-director of the seating program at Children's for a 10 year period as well as a consultant for the United Cerebral Palsy Center's seating clinic. She served as educational specialist for Freedom Designs for 21 years and educational consultant for Convaid/R82 for 4 years. She has lectured both nationally and internationally with regard to seating and mobility for over 25 years. She has a private practice specializing in pediatric neurology clientele for treatment and equipment needs. She is an ATP and certified in pediatric NDT with a solid focus on improving function through treatment and equipment.

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