

Case Example – Valeria

Permobil F5 Corpus VS

Written by: Heather Cianciolo, OTR/L, ATP/SMS

Demographics

Valeria is a 9-year-old girl from New Hampshire in the US. Valeria lives with her parents in a wheelchair accessible home and attends elementary school. She leads an active lifestyle and likes being outside with her parents, cooking with her grandmother and socializing with friends. At the time of the intervention, she was not able to functionally propel a manual wheelchair nor safely, nor functionally operate an entry-level basic upright power wheelchair. Her current equipment significantly limited her participation with school and home activities.



Diagnosis / Condition:

Valeria has been diagnosed with Cerebral Palsy (CP). She has significant lower extremity (LE) extensor tone despite bracing and Botox injections. Her left upper extremity (UE) is involved however her right UE can isolate movement to successfully operate a joystick. Her medical history includes visual impairments: esotropia, amblyopia of left eye, hyperopia and astigmatism. A cranial MRI confirmed ventriculomegaly and hydrocephalus ex vacuo. Valeria has spasticity, diminished strength, postural asymmetries and fatigue. She wears glass for correction of her visual deficits. She currently wears a TLSO and bilateral DAFOs.

General Level of Function

She has been attempting to use a pediatric frame MWC with rehab seat cushion and back support since 2020 as her primary means of mobility. She uses a gait trainer for therapeutic standing and taking a few steps with mod/max assist due to spasticity and weakness. Her LEs will “scissor” when standing and walking with Max assist because of bilateral foot drop and inability to flex knees during the swing phase. She requires Mod/Max assist for ADLs. She frequently requires repositioning in her MWC due to leg and back discomfort. Valeria’s available hamstring range fluctuates from 30-45 degrees bilaterally. Despite weekly therapy sessions, Valeria remains ineffective with manual propulsion and exhibits poor sitting balance in her scooter or entry-level power wheelchair. As she has become school aged, she is unable to keep up with her peers, mobilize to the restroom on time or different areas of the school and play with friend in the school playground or home. She is unable to “walk” to school with her friends and family as she cannot negotiate uneven pavement, curbs or sidewalks with her current equipment. Valeria’s parents purchased a scooter and entry –level power wheelchair which she quickly learned to become proficient with driving. This wheelchair is not appropriate for continued use as Valeria requires appropriate supports for sitting balance and postural asymmetries. She requires support from rehab seating components to engage in UE distal function.

Current Wheelchair & Wheelchair Cushion

Quickie Zippie G, a folding manual wheelchair (MWC) with Jay skin protection & positioning cushion, Jay 3 support back with laterals, headrest and chest harness

Rabbit passive standing frame

Rifton Pacer Gait Trainer

Privately purchased scooter and basic upright power wheelchair

SEATING CHALLENGES

Postural impairments: Scoliosis, trunk rotation, posterior pelvic tilt and pelvic obliquity

She requires additional trunk support both anteriorly and laterally to provide alignment, sitting balance and upright posture for UE distal function.

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MOBILITY GOALS

- Stable seated balance and improved independence with transfers
- supported dynamic standing to assist with toileting, school activities (playground recess, choir, art, PE lunchroom, washing hands), home tasks (cooking, washing dishes, bathroom/ sink access for ADLs, playing with friend/family)
- Age- appropriate independent mobility at school and home
- Independent pressure management, weight shifts and repositioning while in wheelchair
- Assisted stretching and tone management of lower extremity musculature
- Increased participation in home and school activities

OUTCOME



Outcome of cushion intervention

Valaria's clinical team at school report that they have established short- and long-term goals for integrating her power wheelchair seating functions particularly stand into her care plan and daily routines at school and home.



Medical

Her mother reports 6 months following the fitting and delivery of her new power wheelchair with power seating functions including stand, Valaria continues to utilize the PWC as her primary means of mobility. She tolerates a full day of school and home activity while seated in her new PWC of >8-12 hours. Therapy has documented improvements in her tone and spasticity with prolonged and frequent standing with the integration of standing on her mobility base. Her therapists mention that she is often asking to stand more often and reports less discomfort throughout her school day.



Functional

The mobility base along with the full multi-power seat functions has provided self-directed and independent use of dynamic repositioning and movement at school and home. The new PWC allows her to stand on demand for increased functional use of her UE to participate in activities at home and in school with peers. (see pictures on next slide)She has responded well to increased frequency and length of standing which has opened the opportunity for integration into more activities.



Psychosocial

Valaria's parents, school therapists and school support aide report that she has reported less discomfort "sitting" at school and enjoys "keeping up" and being at the same level to play with friends. Her therapist and teachers report that she integrates standing into her daily routines constantly on her own without cues. Her therapists and parents have documented improvements in her mood, engagement in school and confidence/socialization with peers.



BEFORE



AFTER

Valaria

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PRODUCT INFORMATION / SOLUTION IT OFFERS

F5 Corpus VS- front-wheel-drive **standing power wheelchair** designed to offer advanced mobility, health benefits, and independence for users who cannot stand on their own. This base provides the opportunity to integrate multiple power seating functions including stand while driving. The front drive wheel configuration provides increased standing angles, true 90 degree turning radius and optimal drive performance over uneven surfaces and obstacles.

Permobil F5 Corpus VS

Corpus Ergo Backrest and Cushion: part of the advanced **Corpus Seating System**, designed to provide ergonomic support, pressure management, and customizable comfort. The backrest is contoured to follow the natural shape of the spine, promoting better posture, alignment and upper body support.

Comfort Company M2 Anti-thrust Seat Cushion-a specialized wheelchair seat cushion designed to enhance **pelvic stability, postural alignment, and skin protection** for users at risk of sliding forward and/or developing pressure injuries. A dual density foam and molded base in combination with the raised anterior section decreases the tendency for the pelvis to migrate forward, promoting alignment and reducing shear forces. A key feature is the **Quadra3D Gel Pack** which is a four-compartment gel insert that redistributes pressure, reduces shear and minimizes heat buildup.

Permobil Comfort Company M2 Cushion

Secondary supports include butterfly chest harness, Swing-away laterals, Thigh guides, Shoe holders, and pelvic belt are integrated into the seating system to provide additional trunk, pelvic and LE alignment and positioning while standing and sitting.



RESEARCH REFERENCES:

Gohlke, J. H., & Kenyon, L. K. (2024). Exploring powered wheelchair standing device use in children and adults: a longitudinal case series. *Disability and Rehabilitation: Assistive Technology*, 19(3), 699-711.

Kenyon, L. K., Aldrich, N. J., Behl, S. L., Bazany, S. G., McDonagh, E. R., & Miller, W. C. (2024). Enabled to stand: a single-subject research design study exploring pediatric power wheelchair standing device use. *Pediatric Physical Therapy*, 36(3), 316-327.

Kenyon, L. K., Straw, L., Wassermann, M., Yasick, E. L., & Kiger, A. L. (2024). School-Based Therapists' Perspectives of Wheelchair Use in US Schools: A Survey Study. *Pediatric Physical Therapy*, 36(1), 71-78.

Masselink, C. E., LaBerge, N., & Detterbeck, A. (2021). Policy analysis on power standing systems. *Preventive Medicine Reports*, 24, 101601. <https://doi.org/10.1016/j.pmedr.2021.101601>

[Permobil Standing White Paper](#)

[RESNA Position Papers, White Papers, and Provision Guides \(Clinician task Force and RESNA Position on the Application of Supported Standing Devices; Position on the Application of Tilt, Recline and Elevating Leg Rests for Wheelchairs; Position on the Application of Power Mobility Devices for Pediatric Users\)](#)

Valaria

Permobil F5 Corpus VS

Here is a video of Valaria with her father, school principal, equipment dealer, Permobil team and therapists as they surprise her with her new Permobil power wheelchair for the first time at her elementary school. Her favorite colors are blue and pink like her sneakers!

