

Client: Danny

PT/OT/Supplier: Stephanie Lam, B.Sc.(Kin), M.Sc.(PT)

Location: Victoria, B.C. Canada

Danny is a young man with the diagnoses of autism spectrum disorder (ASD), sensory processing disorder (SPD), and global developmental delays (GDD). He weighs over 200 pounds and is 6 feet tall and still growing. He is ambulatory, however needs a mobility base to safely access the community. Danny loves the outdoors and lets his caregivers know he wants to go outside using his Picture Exchange Communication System. He is always given the choice to walk or sit and be pushed. If walking, his caregivers have a very difficult time getting him to return to the school in a manner that is physically safe for everyone.

Danny is seen at the Queen Alexandra Centre for Children’s Health, Wheelchairs & Seating Services in Victoria, British Columbia. He has been evaluated in this program by physical therapist Stephanie Lam.

Initial Evaluation

When Danny was first evaluated, he was seated in an adaptive stroller. He was actively **seeking movement by rocking** and clearly agitated that the mobility base was not responding to his [movement](#). A loaner Quickie IRIS tilt manual wheelchair was provided to better meet Danny’s needs while awaiting the recommended equipment.

In the loaner manual wheelchair, Danny’s large rocking movements resulted in the **back mounting hardware loosening** and requiring tightening several times. As he extended at the hips, he also **pushed forward into a posterior pelvic tilt**.

He extended with force against the footplates which resulted in the footrest



hanger breaking at the receiver, as well as the footplates shearing off the rest of the assembly. A one-piece footboard was added to strengthen this area, but Danny snapped this in half. **He has broken 6 – 10 footrest hangers and/or footplates on the IRIS.** Stephanie shares, “I’ve lost count how many times he’s sheared off the foot plate from the leg rest.” The clinic continued to tighten, readjust, repair, and replace items, as needed, on the loaner manual wheelchair.



Quick Notes

Challenges:

- ✓ Rocking and Banging
- ✓ Wear and Tear on equipment
- ✓ Injury Risk
- ✓ Tipping Risk
- ✓ Sensory Seeking

Areas affected:

- ✓ Back
- ✓ Legs

Equipment Used:

- ✓ [Dynamic Rocker Back](#)
- ✓ [Dynamic Footrests](#)
- ✓ [PDG Fuze T50N](#)

Dynamic Seating, part 1

Stephanie knew that a different solution was required. The team placed Miller's Adaptive Technologies Leg Extensions on the footrest hangers. This dynamic component provides telescoping downward movement in response to force on the footplates. These were installed the first week of school. Unfortunately, the clamps which attached this dynamic component to the footrest hangers was **loosening daily** and within a week Danny had **broken** the interlocking footplate where it attaches to the footrest hanger – and snapped the footplate, as well.

Dynamic Seating, part 2

After numerous repairs on the loaner Quickie IRIS and issues with the Leg Extensions, Stephanie and her team recommended a PDG Fuze T50N tilt manual wheelchair with a Seating Dynamics Dynamic Rocker Back interface (DRBi). This was recently delivered, and Seating Dynamics Dynamic Footrests (with telescoping and knee extension features) are in process. We will update this Case Study after these are installed.

Danny immediately started rocking and was very animated and [happy](#)! When the DRBi was 'locked out', preventing movement, he is seen to exert significant force against this dynamic [component](#). His strong forces were also evident when initially trying the Clear default elastomers, which are shipped already installed in the DRBi. This Medium level of resistance was inadequate, as he was fully compressing the elastomer and, as a result, the metal on each side of the elastomer was touching. Stephanie switched the Medium (Clear) elastomers for Extra Firm (Green) to increase resistance while still allowing movement.

Stephanie did not order Dynamic Head Support Hardware as Danny does not tend to extend at his neck. Rather, he tends toward trunk and neck flexion. We look forward to seeing how Danny does over time with these Dynamic Seating interventions!



Stephanie Lam, B.Sc.(Kin), M.Sc.(PT)
Victoria, B.C. Canada

“He was so happy!”

Referencing when Danny first received the Dynamic Back and began rocking.

About the Author

Michelle Lange is an occupational therapist with over 38 years of experience and has been in private practice, Access to Independence, for over 19 years where she currently focuses on education and consultation. 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* (1st & 2nd eds). Michelle is a RESNA Fellow and member of the Clinician Task Force. Michelle is a RESNA certified ATP and SMS.
