

## **Wheelchair Adjustments, Small Changes for Big Improvements Series: Part 1-Axles Dumping Technique**

For occupational therapy, wheelchair adjustments tend to fall within our discipline. However, the cost of these adjustments does not always fall within our budgets. No matter the source of these financial limitations, whether it is distributors, upper management; patients or their family's therapist's hands can be tied on the options and outcomes they want to provide their patients in regards to wheelchair adjustments. I am writing this series to provide some tips and tricks that I have worked out for altering wheelchairs in my years of practice as an OT. These tips strive to illustrate to clinicians low cost options and new opportunities they may have been un aware of. Most of these adjustments are easy, efficient, and should help improve the functional mobility and positioning needs of your patients.

### **Part 1 - Axles Dumping Technique**

For this first part of the series focus on the axles of the wheelchair. Easy to observe and ever present, these simple adjustments to the positioning of the axles of the wheels are often missed. I recommend these be your first consideration for adjusting a wheelchair. This first installment will focus on the "dumping" technique with wheelchair frames. Before adjusting, look at the points where the wheel axles are set on the frame of the wheelchair (see figures below)



\* If additional holes are not present to raise or lower the axles, the following adjustment tips are achievable. If not, consider the purchase of adjustable wheel brackets, purchase of a new wheelchair, or switching components with a comparable wheelchair.

### Option 1: Front Axle Down, Back Axle Up “Dumping the Wheelchair”



Positioning the front axle on its' lowest setting and moving the back axle to its' highest setting actually adjusts the frame and sitting position of the wheelchair in the opposite directions; raising the front in respect to lowering the back (see figure above). This setup shifts the patient's weight posterior and places them in a slight recline. This simple adjustment has been proven to help in many of the following cases and outcomes:

**Pressure Reduction** - Reducing pelvic and sacral pressure by shifting the center of balance and downward pressure partially backwards and into the backrest.

**Restraint Reduction** - Patients who are a high fall risk will require more strength and time to reposition or attempt unsafe, unassisted transfers from this position. For geriatric and dementia patients, this in itself can limit their fall risk, thereby decreasing the need for restraints and alarms.

**Postural Support** - Patients with kyphosis, cervical stenosis, or any other diagnoses that limits their trunk extension and upright postural position will find this adjustment to the wheelchair frame better contours to their shape. This aligns their vision and oral planes more parallel to the horizon rather than down, resulting in better interacts with their environment from the wheelchair, decreased fatigue when up, improved positioning for self feeding and swallowing, and overall increased functional performance.

I hope this adjustment technique helps you and a patient of yours. Look for my additional installments in this series for more options and tips.