**Pre- and Post-Test Assessments with Answer Key**

Pre-Test

JB is a 17 year-old male with spastic quadriplegic CP. His spasticity manifests most significantly in his hamstrings, adductors, and gastroc/soleus, as well as upper extremity flexors (biceps, wrist and finger flexors). His primary means of mobility is a power wheelchair with joystick control, which he is able to maneuver around his high school during class changes. His power wheelchair also has a standing feature. He is unable to maintain full weight bearing in standing without moderate to maximal assistance, as he lacks the trunk and lower extremity strength to maintain upright alignment, causing him to sink into a crouch gait that is only sustainable for a few seconds if no outside support is given. JB requires moderate assistance of one person for transfers in and out of his wheelchair. During the transfer, he is able to maintain full weight on his feet and use both arms to securely hold onto the person transferring him. **What piece of equipment could be implemented during PT to help JB work on weight bearing and mobility? Also note any important features/accessories you would be sure to think about when ordering this adaptive equipment.** Be sure to explain your rationale for your equipment choices.

**Answer**: Gait trainer/pacer with saddle support.

**Possible features/accessories:**

* Saddle or sling for pelvic support (this is necessary)
* Supports: chest and arm (could include handholds for additional support)
* Straps: ankle and/or thigh to prevent scissoring; arm straps to keep UEs on arm supports
* Caster features: swivel lock, brake, variable drag, one-way ratchet control
* Type of frame
	+ Durable frame (17 y.o. boy), yet as lightweight as possible to allow for easier forward movement
	+ Color options (get the child involved in the decision-making process)
	+ Width – is it wide enough to allow for transfers from power WC to pacer
	+ Height adjustable
	+ Appropriate size (think about max weight capacity, room for growth)
	+ Easy breakdown for transport
	+ Dynamic frame can allow for more natural movement during gait (*Rifton now has a dynamic pacer – the frame allows for 3” of vertical movement and 2” of horizontal movement (with separate lock-out control for each).*
* Type of base
	+ Standard base – use for indoors and outdoors
		- **\****most practical option for JB*
	+ Utility base – large, rugged wheels for mobility on rough surfaces
	+ Treadmill base – wider base that can be placed over treadmill

**Incorrect answers:**

* A traditional walker will not provide enough support unless there is significant pelvic support. If they state they will need significant additional support they will be awarded 5 points.
* A dynamic stander is not appropriate because he already has a standing feature on his power WC, and with his level of impairment he would be unable to manually push it.

**Grading**: Students will receive 10 points for correctly stating gait trainer/pacer, and 1 point for each feature/accessory they give (the above list is not all-inclusive and reasonable features/accessories mentioned will be credited).

Post-Test Assessment

AW is a 10 year-old female with a diagnosis of trisomy 18. She presents with growth failure; she currently weighs 32 lbs and is 40 inches tall. Last year AW went through serial casting to correct bilateral clubfoot deformity and now her foot alignment has greatly improved, allowing her to tolerate her AFOs. Due to a hamstring contracture she is unable to achieve full extension passively in her right knee. AW also has a TLSO that she wears most of the hours she is at school for her progressing scoliosis. AW is unable to propel a manual wheelchair and lacks the intellectual ability to navigate a power WC, so her primary means of mobility is an adaptive stroller, which is pushed by her parents, teachers, etc. AW has good head control and her school-based PT has been working with her recently on improving bimanual play. **What piece of equipment do you think is necessary to incorporate into AW’s daily routine in order to promote more weight bearing? Also note any important features/accessories you would be sure to think about when ordering this adaptive equipment.** Be sure to explain your rationale for your equipment choices.

 **Answer:** Prone stander.

**Possible features/accessories:**

* Adjustable footplates (allow for increased PF if AW is not wearing AFOs) or strapped sandals with wedges to aid in evenly distributed WB
* Supports that allow for adjustments of AW’s knee flexion contracture
* Supports: hip stabilizers, knee laterals, trunk laterals, chest support, seat/pelvic pad
* Ability to adjust the angle of ABD in the legs of stander frame, allowing for better weight bearing and improved hip biomechanics
* Tray attachment so that AW can work on bimanual play or other school activities while in stander
* Size (& is it adjustable): does it fit AW? Does it take up a lot of space in the classroom? Can it be easily stored?
* Color (get the child involved in the decision-making process)

**Incorrect answers:**

* A dynamic stander would not be appropriate as AW would not be able to manually propel it.
* A supine stander is a possible option (the main focus here is that they realize AW should have a stander). A prone stander is the first choice because of AW’s good head control and lack of need for a headrest. In addition, if AW is unable to maintain fully upright, it would be easier for her to work on bimanual play while in a prone stander than a supine stander.

**Grading**: Students will receive 10 points for correctly choosing a prone stander, 5 points for choosing a supine stander, and 1 point in addition for each feature/accessory they give (the above list is not all-inclusive and reasonable features/accessories mentioned will be credited).