# Equipment Selection: Decision making using the International Classification of Functioning, Disability, and Health

L Lowe[1,2], A Montgomery[2], J Choate[2], A Spinelli[2]

1. Physical Therapy, University of Central Arkansas
2. Pediatrics Plus Therapy Services

## BACKGROUND AND PURPOSE

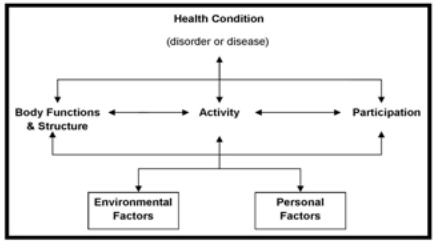
Physical therapists working with children often make decisions regarding equipment selection to promote development or achievement of upright, independent mobility.

The purpose of this report is to describe the use of the International Classification of Functioning, Disability, and Health (IFC) to organize and guide decision making between three equipment options for ambulation:

- A) The Wenzelite Nimbo posterior walker
- B) The Drive Trekker gait trainer
- C)The Prime Engineering KidWalk mobility device

a) b) c)

The ICF provided a holistic framework by which to examine the advantages and disadvantages of each option.




World Health Organization (WHO) International Classification of Disability, Functioning and Health

## CASE DESCRIPTION

One three-year-old male, with a diagnosis of hypotonic cerebral palsy and ataxia participated. He presented with gross motor delays, specifically, significant difficulty with ambulation. His daily activities included attending a developmental pre-school with age-mates, community involvement (church, local restaurants, parks, and shopping), and home activities. Using each of the three equipment options, his performance was examined in each of the three ICF dimensions body structure and function, activities, and participation along with environmental and personal factor considerations.

## OUTCOME MEASURES

1) ***Body structure and function*** using the 3 Minute Walk Test (3MWT) for endurance;

1) ***Activities*** using the GaitRite® electronic walkway and the Pediatric Evaluation of Disability Inventory (PEDI); and

1) ***Participation*** using parent and teacher interview.

## OUTCOMES

**Body structure and function :**
There was no significant difference in the distance walked during the 3MWT with each of the pieces of equipment.

| Equipment Option | Distance Walked in 3 Minutes |
|---|---|
| Wenzelite Nimbo Posterior Walker | 305.3 ft |
| Drive Trekker Gait Trainer | 288.8 ft |
| Prime Engineering KidWalk Mobility Device | 270 ft |

**Activities:**
Single-limb stance time (%GC SLS), percent of gait cycle in stance (%GC ST) and swing (%GC SW), and gait velocity (GV) were all most typical while using the Trekker gait trainer. On the PEDI, the summative score of Mobility Domain components F-K was highest using the KidWalk mobility device.

| Equipment Selection | %GC SLS | % GC ST | %GC SW | GV (cm/s) |
|---|---|---|---|---|
| **Normative Data** | 80 | 60 | 40 | 75-99 |
| **Wenzelite Nimbo Posterior Walker** | 23.75 | 41.65 | 60.9 | 51.6 |
| **Drive Trekker Gait Trainer** | 29.55 | 70.5 | 29.5 | 61.5 |
| **Prime Engineering KidWalk Mobility Device** | 28.25 | 71.55 | 28.35 | 30.7 |

| Selected Components of the Social Function Domain of the PEDI (F-K) |
|---|
| F- Social Interactive Play (Adults) |
| G- Peer Interactions (Child of Similar Age) |
| H- Play with Objects |
| I- Self-Information |
| J- Time Orientation |
| K- Household Chores |

**Participation:**
Both teachers and parents qualitatively reported improved confidence and highest satisfaction with overall participation in quality life experiences with the KidWalk mobility device. Below is an example of an open response answer to survey questions regarding participation:

*"Asher will much more easily approach his friends when he is using his KidWalk. I can tell he feels more confident and involved in what is happening in the classroom and on the playground with this piece of equipment." B. Sisson (Teacher)*

## DISCUSSION

Despite no clear differences in the options at the body structure and function level, differences were observed at the activities and participation levels regarding mobility, interpersonal interactions with others, and self-care. The posterior walker was not selected secondary to safety concerns over varied terrain. The participant demonstrated a more controlled and typical gait pattern in the Trekker gait trainer on the GaitRite®.

However, upon comparison with the KidWalk mobility device in the participant's natural environments (home, pre-school classroom, playground), the Trekker gait trainer was not selected based upon noted activity limitations (difficulty getting into and out of the bathroom, inability to carry toys while moving about his environment) and participation restrictions (large turning radius made sharing toys and spaces with friends difficult in the classroom; inability to transition over various surfaces on the playground to play with his friends).

Ultimately, the KidWalk was chosen based upon the ability to customize it to address specific gait needs while promoting the most well rounded functional experiences and participation for this child.

## REFERENCES

Lephart K, Kapla SL. Two seating systems' effects on an adolescent with cerebral palsy with severe scoliosis. *Pediatric Physical Therapy. 2015;27:258-266.*

World Health Organization W. The International Classification of Functioning, Disability and Health—ICF. WHO; 2001.

Carey H, Long T. The pediatric physical therapist's role in promoting and measuring participation in children with disabilities. *Pediatric Physical Therapy.* 2012; 24(2):163-170.