



# Effects of a Novel Intervention on Meal Participation Across Settings In a 10-Year-Old Child with Dyskinetic Cerebral Palsy.

Annette Leier, M.Ed., OTR/L, Joyce Barnett, PT, Mary Rahlin, PT, DHS, PCS3

<sup>1</sup> Ability Occupational Therapy Services, LLC, Anchorage, Alaska

<sup>2</sup>Ability Pediatric Physical Therapy, LLC, Anchorage, Alaska, <sup>3</sup>Rosalind Franklin University of Medicine and Science, North Chicago, Illinois



# Background/Objectives

### The purpose of this poster is two-fold:

- 1) To demonstrate the effects of a novel intervention on the ability of a child with dyskinetic cerebral palsy (CP) to participate in family meals in home and community settings
- 2) To describe an intervention grounded in the perceptionaction, dynamic systems and neuronal group selection theories that promotes self-generated postural control

# Description

### **Case Information:**

The participant was a 10-year-old boy with dyskinetic CP

- Classified in level IV on
  - GMFCS (Gross Motor Function Classification System) (Palisano et al, 1997)
  - MACS (Manual Ability Classification System) (Eliasson et al, 2006)
  - CFCS (Communication Function Classification System) (Cooley Hidecker et al, 2011)
- Classified in level III on EDACS (Eating & Drinking Ability Classification System) (Sellers et al, 2014)

#### Parental concerns:

- \* The child demonstrated immature and unsafe feeding behaviors that complicated meals at home.
- \* Family was unable to comfortably eat at a restaurant because of their child's eating behaviors.

Parental goal for the child:

❖ To gain independence and improve tidiness of the selffeeding process across settings

#### **Contact Information:**

Annetteot@abilityots.com; JoycePT@abilitypediatric.com; Mary.Rahlin@rosalindfranklin.edu

# Description

# Perception-Action (P-A) Approach Intervention:

#### **Theoretical Foundation**

#### P-A Theory **TNGS DST** Emphasized the Explained the **Explanation** Highlighted the role of multiple self-organization mechanism of of movement self-organization perceptual process organization via the concepts of systems selection and reentrant signaling Proposed the Used the concept Used the concept Role of of embodiment to of "adaptive perception-actioncognition value" (salience) explain the cognition perception-action- to explain the connection perception-actioncognition cognition connection connection

(Gibson, 1966; Gibson, 1988; Thelen and Smith, 1994; Thelen, 1995; Edelman, 1987, 1993)

Abbreviations: P-A, Perception-Action; DST, dynamic systems theory, TNGS, theory of neuronal group selection.

## Components

- ❖ Incremental changes in environmental set-up closely linked with manual guidance
- Specific type of manual guidance
  - Light touch provides a vector of force directed toward the child's center of pressure at the support surface
  - Incremental changes in the force vector provide perceptual information to suggest new movement possibilities
  - No resistance provided to the child's self-initiated movements
  - Errors are allowed
- Family instruction

Self-initiates bimanual approach to

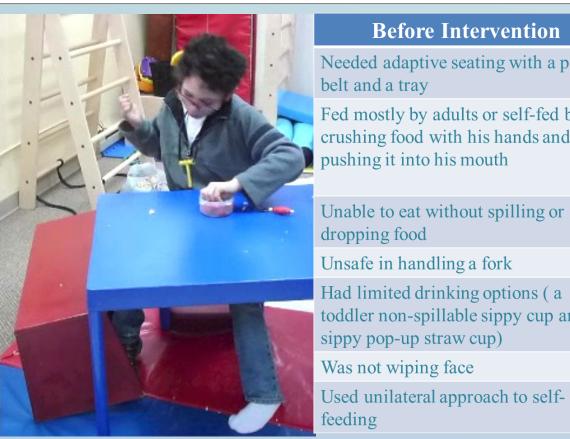
self-feeding

(Tscharnuter, 2002; Harbourne and Rahlin, 2016)

### **Intervention Specific to the Case**

- ❖ Outpatient occupation therapy 1 x week, 45-60 minutes, for a total of 45 sessions, with occasional physical therapy consultations
  - Task-specific intervention focusing on self-feeding activities the entire session time
  - Targeting self-generated postural control specific to feeding while allowing the child to make movement errors
- Parent participation at each session
- Frequent updates of home program developed in collaboration with the parents
- ❖ Activity repetition and intensity ensured by high parental compliance with the home program implementation
- Self-feeding activity highly salient to the child

#### **Outcomes:**



#### **Before Intervention After Intervention** Needed adaptive seating with a pelvic Is able to sit in a regular chair at the belt and a tray family table or in a restaurant Fed mostly by adults or self-fed by Self-feeds a meal with intermittent crushing food with his hands and minimal assistance provided at the oushing it into his mouth elbow; self-feeds finger foods appropriately Accesses his plate with minimal Unable to eat without spilling or spilling or dropping food Uses the fork safely Unsafe in handling a fork Had limited drinking options (a Has acquired two additional drinking toddler non-spillable sippy cup and a options (a spillable sippy cup and a sippy pop-up straw cup) sip tip straw cup) Was not wiping face Self-initiates face wiping



# Significance

- ❖ The P-A Approach intervention was successful in
  - Addressing a participation goal meaningful to the child and his family
  - Reducing the use of adaptive equipment during family meals
- ❖ Parental goal for the child was achieved because of the following factors:
  - Family-centered decision-making
  - Interprofessional collaboration between the occupational and physical therapists
  - P-A Approach intervention being task-specific, repetitive and salient to the child
- Single-subject or multiple baseline design research is needed to establish the efficacy of this novel intervention in addressing participation in children with dyskinetic CP.