

# **Assistive technology for a young child with CP: Impact on participation**

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# What is assistive technology?

- Any item, piece of equipment or product system whether acquired commercially or off the shelf, modified, or customized that is used to increase, maintain or improve functional capabilities of individuals with disabilities (Assistive Technology Act of 1998).

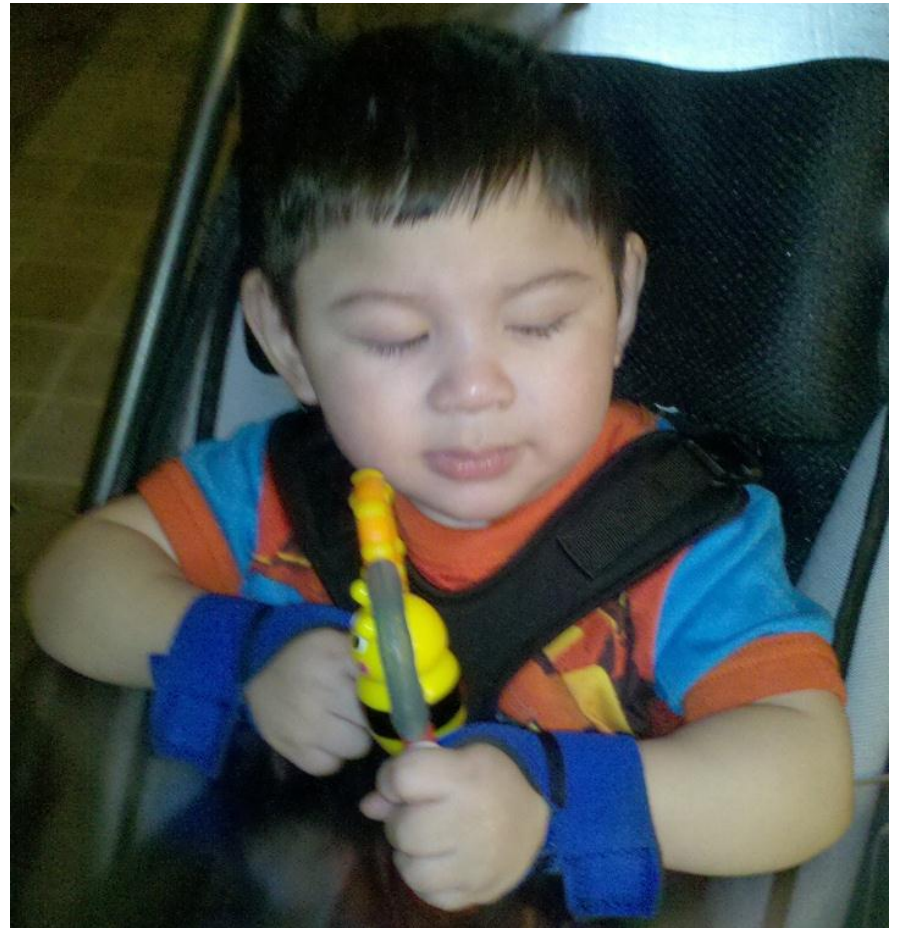


# MYTHBUSTERS

- **Myth: Children under 3 years of age are too young to be taught to use power mobility.** \*Busted by Butler, Okamoto, & McKay, 1983; Jones, McEwen, & Hansen, 2003.
- **Myth: The introduction of AAC reduces motivation to work on speech.** \*Busted by Millar, Light, & Schlosser, 2006.
- **Myth: Young children are not ready for AAC.** \*Busted by Branson & Demchak, 2009.
- **Myth: Children with severe cognitive deficits or profound disabilities cannot learn to use switches or an AAC system.** \*Busted by Cannella-Malone, DeBar, & Sigafoos, 2009 and Lancioni, 2007.

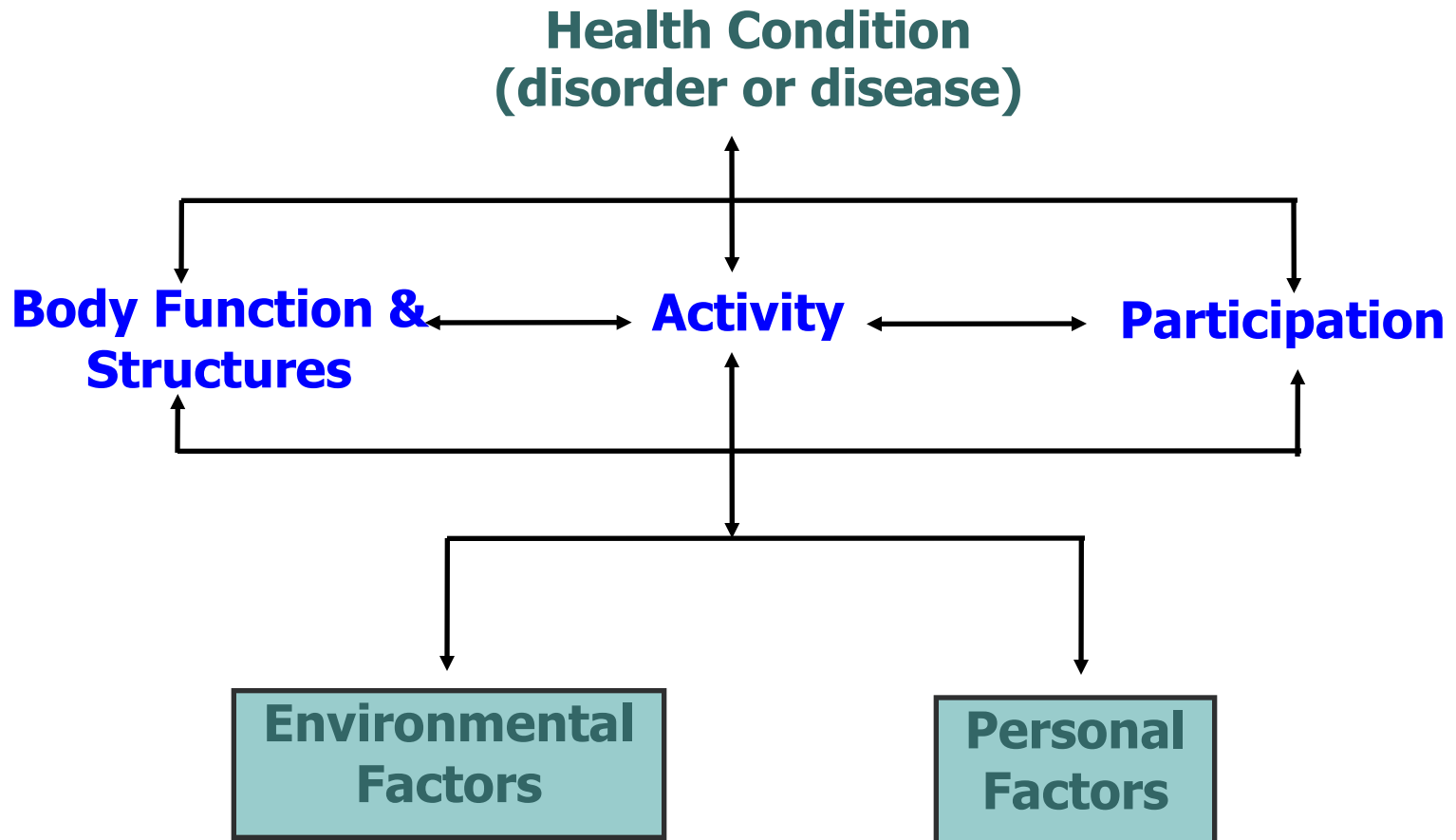
# Meet Juan

- Juan is a 17-month-old child with spastic quadriplegia
- GMFCS Level V
- Here, he is wearing his neoprene hand splints that help keep his hands open and trying to get a toy into his mouth (a favorite activity!)



# International Classification of Function, Disability & Health (ICF)

World Health Organization, 2001





# Health Condition

- spastic CP with seizures
- reflux
- dysphagia with G-tube
- asthma

## Body Function & Structures

- ↑ tone in UEs & LEs
- ↓ tone in trunk
- brain damage in frontal, parietal, & occipital lobes
- ↓ vision/visual tracking

## Activity

- rolls from side to back
- grimaces & turns away to protest
- smiles & vocalizes to show pleasure
- brings hands and toys to mouth with help
- activates switches with head

## Participation

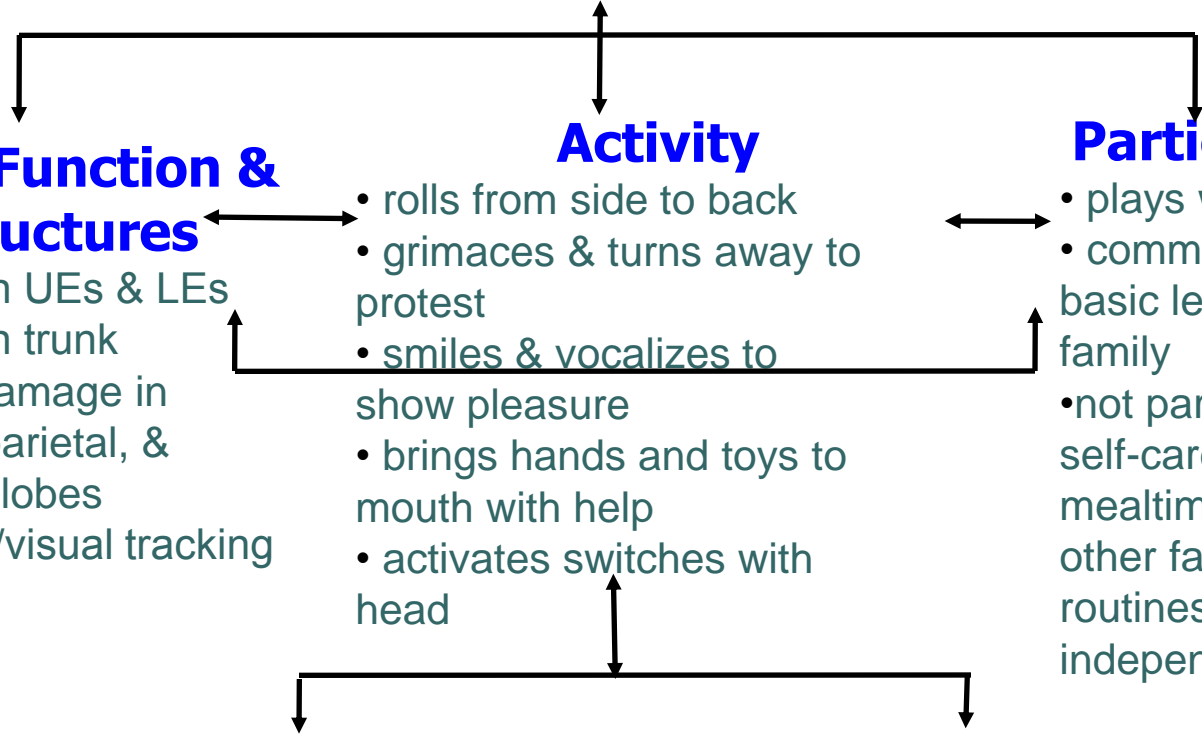
- plays with mom
- communicates on basic level with family
- not participating in self-care, mealtimes and other family routines, or independent play

### Environmental Factors

- lives in small apartment
- no supportive seating available

### Personal Factors

- loves to hear mom's voice and be tickled
- dislikes being "ignored"



# How can assistive technology improve Juan's participation in mealtimes?

- Jazzy EASys wheelchair
- Participation goal: Juan will sit at eye level at his family's dining room table in his wheelchair for 30 minutes to participate in family mealtime.

## ♦ Video



# How can assistive technology improve Juan's participation during bath time?

- Leckey Advance Bath Chair
- Participation goal: Sitting in his bath chair, Juan will look at his mom and smile at least one time during bathing.



# How can assistive technology improve Juan's participation in communication and play?

- An **ultimate switch** with mounting devices from Enabling Devices.
- **Battery interrupters** from Enabling Devices to adapt battery operated toys for use with switches.
- An **environmental control unit** like the PowerLink 4 from AbleNet that connects any switch to an electronic device.
- A **single message output device** like the BIGmack from AbleNet that can hold a recorded message.





## How can assistive technology improve Juan's participation in communication & play?

<b>Daily Activity</b>	<b>Activity with Switch Adaptation</b>	<b>Materials Needed</b>
Listening to music	Activate switch to turn music on and off	Ultimate switch, CD player, environmental control unit (e.g. PowerLink)
Playing with toys	Activate switch to turn on electric bubble blower	Ultimate switch, battery interrupter, electric bubble blower
Playing with family	Taking turns with his older brother to get tickles from mom; activate switch with recorded message that says "I want tickles" to request	BIGMack with recorded message
Saying hello to family members	Activate switch with recorded message that says "hi" when he notices family members entering room (eg. when uncle comes home from work)	BIGMack with recorded message



## How can assistive technology improve Juan's participation in communication and play?

- Sample participation goal: Juan will activate the ultimate switch to turn music back on within 10 seconds of it turning off.
- Sample participation goal: While playing with mom and brother, Juan will activate the BIGMack to request tickles from mom at least 2x in a 10 minute play period.
- Video



# Summary

- Evidence shows that young children with various disabilities can use AT to increase participation (Butler, Okamoto, & McKay, 1983; Jones, McEwen, & Hansen, 2003; Millar, Light, & Schlosser, 2006; Branson & Demchak, 2009; Cannella-Malone, DeBar, & Sigafoos, 2009; Lancioni, 2007)
- Using ICF framework can assist PTs/OTs in improving participation
- AT can promote family-centered care



# Acknowledgements

- Juan & his family