FINE MOTOR SKILL DEVELOPMENT

In Children With Down Syndrome

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ALWAYS BUILD ON OUR STRENGTHS

My child CAN...

So, now we WILL....
DEAR FUTURE
MOM...DAD...BROTHER...SISTER...GRANDMA...
GRANDPA...AUNT...UNCLE...FRIEND

https://www.youtube.com/watch?v=Ju-q4OnBtNU
THE FINE MOTOR SKILLS “HOUSE” MODEL

Bruni, 2016, p. 2
FIRST LEVEL OF THE FINE MOTOR “HOUSE” BUILDING BLOCKS

**Stability**
Proximal stability leads to distal mobility
- Shoulder, elbow, forearm, wrist, palm, fingers

**Bilateral Coordination**
Efficient use of both hands during an activity will allow to control and position an object while the other hand can manipulate
- Zipping, opening milk container, cutting, stirring

**Sensory Processing**
Neurological process of registering, modulating, interpreting, and integrating all the information from our body, so we can respond in an adaptive and functional way
- Looking for the adaptive response

Bruni, 2016
SECOND LEVEL OF THE FINE MOTOR “HOUSE”

DEXTERITY

• “Ability to make small, precise, accurate, and efficient movements with our hands without excessive effort.” — Bruni, 2016, p. 5

• Using the foundational skills, now able to put it all together!

• Task Analysis
THIRD LEVEL OF THE FINE MOTOR “HOUSE” DAILY LIVING SKILLS

School Tasks
Writing, cutting, typing

Self-Help Skills
Dressing, eating, grooming, showering

Household and Leisure Activities
Chores, sports, hobbies

Bruni, 2016
FOURTH LEVEL OF THE FINE MOTOR “HOUSE”

INDEPENDENT LIVING SKILLS

• Tasks we may complete in our lives as an adult
  • Preparing a meal
  • Making a phone call
  • Grocery shopping
  • Doing laundry
  • House cleaning

Bruni, 2016
PHYSICAL CHARACTERISTICS OF THE HAND

Edwards, Buckland, & McCoy-Powlen, 2002, p. 17

Edwards, Buckland, & McCoy-Powlen, 2002, p. 19
PHYSICAL CHARACTERISTICS OF THE HAND & CONSIDERATIONS FOR A CHILD WITH DOWN SYNDROME

• Hypotonia – low muscle tone in tongue, face, arms, torso, fingers

• Ligament and Joint Laxity – ligaments supporting joints are looser, increases the risk of subluxation or dislocation
  • Atlanto-Axial Instability – first and second vertebrae of the spine are unstable due to lax ligaments
    • Estimated that 10-30% of children with Down syndrome have this instability
      • only 1 – 2% develop symptoms – pg 27

• Shorter Limbs – this is common, may see challenges with learning to sit down, completing toilet hygiene, buying clothing
Physiological Characteristics of the Hand & Possible Considerations for a Child with Down Syndrome

- **Single palmar crease** – may have two creases in the palm versus three. There is no indication that this impacts hand function.
- **Smaller hands overall**
- **Wrist bones** – at birth, may not have all seven wrist bones. They are all typically developed by adolescence. Difficulties stabilizing the wrist to allow movement of fingers to learn grasping patterns.
- **Curved fifth finger** – may make it difficult to stabilize hand on the table during writing, or when using gross grasp to open a lid.
FINE MOTOR SKILLS - 2 TO 4 YEARS

Bruni, 2016, p. 33
FINE MOTOR SKILLS - 5 TO 8 YEARS

Bruni, 2016, p. 35
FINE MOTOR SKILLS - 9 TO 12 YEARS

Bruni, 2016, p. 36
FINE MOTOR SKILLS - 13 TO ADULTHOOD

[Diagram showing skills development from independence to adulthood]

Bruni, 2016, p. 37
THINK ABOUT…

Use structured and unstructured play experiences

• Amount of support needed
  • Full, partial, no assistance

• Type of support needed
  • Physical, visual, verbal, emotional

• Level of interest and engagement by the child
  • Uninterested, limited, attentive, motivated, persists at task

• The response to the child’s learning attempts
  • Encouraging, re-directing, adjusting, ending task
Motivation is critical for engagement in an activity!

- Have Realistic Expectations
- Build on Success
- Break Down the Activity into Small Steps
- Make It “Fun”
- Make It Relevant
- Be Aware of the Environment
- Try It!
WHO'S AWESOME?

You're awesome!
REFERENCES

