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Emerging and Mature Hand Preferences and Congruencies

Poster presentation at the Zero to Three Annual Conference
San Diego, California, November, 2001

Abstract

This poster uses video captures to present examples of unilateral hand movements of a mother and her 2-year-old child, demonstrating how handedness emerges as each hand is used to explore, experiment, and practice a wide variety of activities in daily life during: 1) exploratory/sensory movements, 2) gestures, and 3) functional tasks which include power (resistive), precision (fine manipulation), or power/precision (combination).

While genetics plays the most significant part in determination of hand preference, task requirements (such as power or precision) and environmental factors (such as location of the person in relation to the object) also influence these choices, as preferences emerge through the developmental process during the first 5 years, and is usually well-established throughout adulthood. The examples are further organized into activities of: 1) self-help or daily living, 2) work or productive, and 2) play or leisure, demonstrating how young children alternate hands frequently during these tasks, thus gaining experience and skill in both.

Hand, eye, ear, foot, and mouth congruencies are also analyzed and compared between child and adult. This information is important for all caregivers who need an understanding of handedness in the context of normal development, in order to provide opportunities for children (those developing typically as well as atypically), to use both hands in a variety of situations as they learn increasingly complex unilateral and bilateral movements needed for function.

Organization of the Erhardt Developmental Hand Preference Assessment Short Form (EHPA-S)

Occupational Performance Areas

- Self-help/daily living activities
- Work/productive activities
- Play/leisure activities

Task Requirements

- Unilateral movements (preferred hand only)
- Bilateral movements
 - both hands moving simultaneously and symmetrically
 - one hand leading, the other assisting
 - one hand leading, the other stabilizing
- Bimanual movements (each hand performing differently)

Types of Movements

- Exploratory/sensory
- Gestures
 - symbolic
 - instrumental
 - expressive
- Functional tasks
 - power (resistive)
 - precision (fine manipulation)
 - power/precision (combination)

Examples of EHPA Test Items Matched with Video-captured Still Photographs

**Section 1. Exploratory/Sensory Movements
(Tactile attributes: size, shape, texture, temperature, weight)**



Exploratory/sensory:
Applying lotion (left)



Exploratory/sensory:
Stroking hair (left)

Section 2. Gestures



Symbolic gesture:
Pointing to object (right)



Instrumental gesture:
Sh-h-h (right & left)



Expressive gesture:
Waving (left)

**Section 3. Functional Tasks
3.a. Power (Resistive)**



Power task:
Spoon (left)



Power task:
Dusting (right & left)



Power task:
Digging (left)



Power task:
Spoon (right)



Power task:
Dusting (right & right)



Power task:
Digging (right)

**Section 3. Functional Tasks
3.b. Precision (Fine Manipulation)**



Precision task:
Drawing (right)



Precision task:
Coin in slot (left)



Precision task:
Handwriting (right)

Section 3. Functional Tasks 3.c. Power/Precision (Combination)



Power/precision task:
Weeding (left)

Section 4. Hand, Eye, Ear, Foot, and Mouth Preferences



Ear preference:
Listening to watch (right)



Foot preference:
Kicking ball (right)



Foot preference:
Kicking ball (left)



Foot preference:
Leading foot (right)



Foot preference:
Leading foot (left)

- [Normal and Atypical Hand Preferences video](#)
- [The Erhardt Developmental Hand Preference Assessment \(EHPA\)©](#)

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