

Evidence Based Practice: Visual Motor Integration for Building Literacy: The Role of Occupational Therapy

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The Research: Occupational therapy interventions for visual processing skills were found to positively affect academic achievement and social participation. **Key elements of intervention activities needed for progress include: fine motor activities, copying skills, gross motor activities, and a high level of cognitive interaction with completing activities.**

What is it? *Visual information processing skills* refers to “a group of visual cognitive skills used for extracting and organizing visual information from the environment and integrating this information with other sensory modalities and higher cognitive functions”. Visual information processing skills are divided into three components: visual spatial, visual analysis, and visual motor. *Visual motor integration skills* (i.e. eye-hand coordination) are related to an individual’s ability to combine visual information processing skills with fine motor or gross motor movement. Studies have found that visual motor integration is a component of reading skills in children in elementary school

Specific Combination of Intervention Strategies Found to be Successful

Fine motor activities

- Intervention activities: Manipulating small items (e.g., beads, coins); opening the thumb web space, separating the two sides of the hand; practicing finger isolation; improving hand strength (e.g., tweezer and tong activities, tearing paper)
- Functional tasks: Grasping pencils efficiently and in a sustained way; managing clothing fasteners; manipulating and using classroom tools (e.g., scissors)

Drawing and copying forms

- Intervention activities: Copying simple to complex forms from a model; copying symmetrical forms; drawing and forming lines with graded pencil control
- Functional tasks: Forming letters and numbers from memory; copying words and sentences in written work from near and far distances; practicing spatial and size awareness in written work as well as awareness of lines in scissor tasks

Gross motor activities

- Intervention activities: Practicing large motor activities, bilateral coordination tasks, and midline crossing activities
- Functional tasks: Practicing balance and coordination in the classroom, as well as large motor skills for use in learning activities; manipulating clothing in toileting tasks; donning and doffing coats and other outdoor clothing; playing on outdoor equipment

Cognitive interaction

- Intervention activities: Using manipulatives for motor involvement in learning spelling and math facts
- Functional tasks: Manipulating small items and letters in hands-on learning tasks

Other Visual Motor Integration Activities

- Bouncing and catching a ball is a visual motor integration activity that requires processing the vestibular, proprioceptive, and visual systems. Tracking a bouncing ball encourages an individual to look, remain balanced, focus attention, and move in gross motor patterns with a focus on force perception. Try games such as Four Square, with added motor patterns and cognitive components, such as clapping hands or stomping feet between catches. Add cognitive patterning with letters, numbers, or symbols. Other ideas include alternating hands to catch and throw, standing on a balance board or other unstable surface, spelling words with each bounce, and doing timed bouncing.
- Daily functional activities are a key way to incorporate visual motor activities into daily home life (ex. Sorting laundry, bagging groceries, sorting silverware).
- Color-coded gross motor activity: Cut straws into 3" lengths. Use cut paper bags to create a standing container. Use colored paper to color code the bottom of each paper bag. Children can stand over the bags and drop the straws into the matching bag.
- Letter Games: Use letter pieces from a board game, such as Scrabble, in a visual motor integration cognitive task. Spread the letters out on a table and ask the child to write their name or spell words. They can then scan for the letters and place them one by one on top of their written work.
- Tape Games: Stick pieces of different colors of masking tape on a table or carpeted. Children can then peel off the tape by a specified color order or pattern or by peeling overlapping pieces by noting the "puzzle" of colors.
- Washer/Bolt Activities: Use washers, nuts, and bolts in various sizes for a form copying activity. Children can copy forms by recreating patterns using the manipulatives or a picture representing the side view of a bolt with washers and nuts. Try this activity with a timer to increase difficulty and grade the task.