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continued

Foundations for School Readiness: Visual and Fine Motor Skills (Day 2)

Presented by: Emily Dassow, OTR/L

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As a result of this course, participants will be able to:

- Identify how fine motor and visual motor skills and develop effect students' ability to access curriculum.
- Describe treatment strategies to improve visual motor function of students.
- Recognize treatment strategies to improve fine motor function of students.

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Fine Motor Review

- Fine motor skills are the collective skills and activities that involve using the hands and fingers (Amundson & Weil, 2001; Case-Smith & Shortridge, 1996).
- Fine motor skills are those that require the small muscles of the hand to work together to perform precise and refined movements.
- Fine motor tasks incorporate more than the small muscles of the hand

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Fine motor skill affects students' academic success

- Grissmer, Grimm, Ayer, Murrah, and Steele (2010) found early fine motor skills in kindergarten were a predictor for reading and math achievement during elementary school

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Fine motor skill impairments affect students' ability to access curriculum

- Managing classroom materials
 - Writing utensils, scissors, backpack, lunch box, pencil box, math manipulatives, paper clips, stapler, glue bottles/sticks, pencil sharpeners, erasers
- Managing self care tasks during the school day
 - Toileting, dressing, hygiene, feeding
- Participating classroom projects and crafts
 - Refusal to participate due to inadequate fine motor skills
- Socio-emotional health
 - Self esteem, confidence, depression, avoidance

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continued

Fine Motor skill foundations

- Proximal Stability & distal mobility
- Motor control
- Postural control & core strength
- Range of motion
- Sensory processing
 - Tactile
 - Visual
 - Proprioceptive
 - Vestibular
- Praxis

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continued

Fine Motor skill foundations

- Hand development
 - Arches of the hand
 - Separation of the hand
 - Finger opposition
 - Finger isolation
- Strength & endurance
 - UB strength, pincer strength, intrinsic muscle strength, grip strength
- Wrist Extension
- Bilateral motor coordination & bilateral integration

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Fine motor skills using the hand and wrist

- In hand manipulation
 - Simple and complex rotation
 - Simple and complex translation
 - Shifting
- Grasp patterns & prehension
- Dexterity & precise refinement of movement

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continued

Proximal stability treatment ideas

- Weight bearing – animal walks, WB walks
- Hand hockey – assume a plank position facing each other and make a goal by throwing a bean bag between your opponents hands/UB.
- Writing or drawing supine on floor to the underside of a table
- Zoomball – standing or vertically
- Oversized wall mazes or race tracks

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Proximal Stability treatment ideas

Ball pushing with an opponent



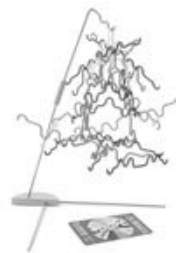
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Motor Control treatment activities

- Placing marbles on top of golf tees
- Placing marbles on top of bath mats suction cups
- Stacking blocks – trying using more than one sized block
- Blockhead game
- Suspend Jr



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continued

Sensory Processing Treatment ideas

- Tactile ideas:
 - Rice bin w/magnetic letters, stereognosis, drawing letters on back of hand or back, finger painting, making messy recipes
- Proprioceptive ideas:
 - Stacking block towers using tongs, masking tape, playdough, putty locating items and replacing them, sharpening pencils with a manual sharpener, using a stapler, using a hole puncher
- Vestibular ideas:
 - Crossing midline to pick up objects or place stickers, moving objects from floor to above head, swinging while completing a FM task, marble maze in a cardboard box, rolling over a barrel or ball to retrieve items in prone or supine
- Visual – we'll get to this later

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Arches of the hand treatment ideas

- Slide tiny rubber bands from the MC joint to the fingertip sliding the rubber band up and down on the finger, try transferring the rubber bands from finger to finger without dropping them
- Lay a piece of newspaper flat on the table, with one hand without lifting it from the table, gather the newspaper into the palm

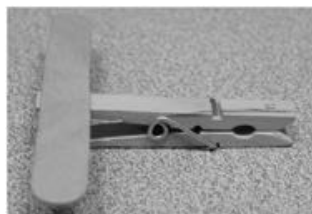


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Arches of the hand treatment ideas

- Airplane clips: use clothespins with popsicle sticks glued perpendicular to the end of one end of the clothespin and use only fingertips and the tip of the thumb to squeeze open the clothespins



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Arches of the hand treatment ideas

- Pop bubble wrap bubbles with thumb and finger opposition
- Use the fingertips and thumb to roll a ball along a line – this is hard to do on a vertical surface so try it first on a horizontal surface
- Large, whole-hand spray bottles: spray the plant, make designs on the concrete or make art by spraying tissue paper over white paper so it bleeds its color when wet

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continued

Separation of hands treatment ideas

- Roll small balls of play dough or putty in fingertips
- Tear paper or pull cotton balls apart while keeping ring and pinky fingers flexed into palms
- Utilize small beads in crafts and games
- Chinese stress balls – you can grade this using different sized balls depending on skill level and hand size, marbles work great for this!
- Writing, coloring or painting with a "magic jewel" held against the palm with the ring and pinky fingers flexed
- Eye droppers, tongs or tweezers

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Hand strengthening treatment ideas

- Nasal bulb suction races – squeeze the air out and propel cotton balls or pom poms across the floor. You can use squirt guns or spray bottles too!
- Erasing
- Make paper airplanes – creasing the folds improves strength
- Make use of the playground apparatus for hanging and climbing activities
- Glue bottles, puffy paint, fabric paint, glitter glue in squeeze bottles – trace over pathways and lines

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continued

Wrist extension treatment ideas

- Use an easel, blackboard, desk easel, slant board, or just tape some paper up on the wall or window.
- Many common activities can be positioned to promote wrist extension.
 - For example: Colorforms or felt boards; chalkboard activities; Magna doodle; painting, drawing, coloring, mazes, dot-to-dot, or stencils; magnetic letters or shapes; sticker art; stamp art

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continued

Wrist extension treatment ideas

- Leaning on one open hand on floor while working on a large picture, with sidewalk chalk, floor puzzle, or anything else that can be worked on while leaning over it on the floor
- With theraputty -- hang hand over edge of a table with palm down. Hold therapy putty with other hand beneath the exercising hand. Grab the putty and stretch it by extending the wrist back.

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Wrist extension treatment ideas

- Bucket elevator: attach a bucket with a string/rope to the middle of a dowel. While holding the dowel horizontally with one hand on each side of the dowel (rope in between the hands) with the both arms and shoulders extended, alternate extending each wrist to wind the rope on the dowel to raise and lower the bucket.



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Bilateral skills treatment ideas

- Hand clapping games
- Pool noodle balloon tennis
- Carrying a tray without spilling items from the tray
– try this on a balance beam or unstable surface
- Jumping jacks– include lower body tapping to create a longer sequence for added challenge (1, 2, inside, outside, outside, inside)
- Cross crawls – in front or behind the body
- Crossing jumping jacks

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continued

Bilateral skills treatment ideas

- Scooter board activities – propelling with UB movements, pulling up/along a rope
- Pipe cleaner art
- Wrapping rubber bands around objects
- Self care tasks: zipping, buttons, tying shoes

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continued

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In-hand manipulation treatment ideas

- Place two pennies and two paper clips in palm of hand. Try to move one penny to fingertips and place on table without using other hand, then one paper clip, and so on. Try it with more items as it gets easy.
- Light bright, pegs and pegboards –
 - practice complex translation to position several pegs in the palm from the fingertips and then retrieve one at a time to place them into the board.
 - present or position the pegs with the wrong end of the peg facing the board and have the child perform complex rotation in order to position the peg in the board.

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continued

In-hand manipulation treatment ideas

- Practice shifting pipe cleaners through the holes of a colander to make an alien or robot hat
- Paperclips – make paperclip chains, practice clipping one or several pieces of paper
- Pencil helicopter – see how many times the child can rotate the pencil in their hand before losing coordination or dropping the pencil

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continued

In-hand manipulation treatment ideas

- Play finger tug of war with coffee stirrer or a marble
- Hold a small plastic cup filled with water (the lid from liquid laundry detergent works well for this) upright in the tips of fingers. Turn the lid without spilling by turning it in fingertips.

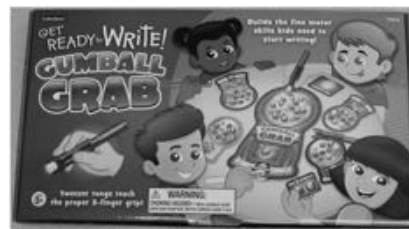


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Grasp pattern treatment ideas

- Operation
- Perfection
- Stamps
- Battleship
- Pop beads
- Bowling game
- Gumball Grab



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Dexterity treatment ideas

- Tricky Fingers
- Using tiny stickers
- Fabric mazes
- Sign language
- Mouse Trap
- Pipe cleaner crafts

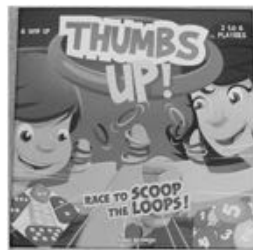


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Finger opposition and isolation treatment ideas

- Finger twister
- Loopz – hand held game
- Where is thumbkin?
- Pick up Stix
- Thumbs Up game
- Crocodile Dentist game



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Visual Motor Skill Review

- Visual-motor skills have been defined as “the ability to integrate the visual image of letters or shapes with the appropriate motor response” (Schneck, 1996, p. 370)
- Visual-motor skills can be thought of as being multifaceted and influenced by a number of factors (e.g., pencil grip, fine motor skills, eye–hand coordination, kinesthesia, motor planning, and visual-perceptual skills) as described by Schneck (1996)

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continued

Visual perceptual skill affect students' academic success

- Students use coordinated eye movements and visual perception skills in order to focus and interpret relevant visual information for learning
- Students use visual perceptual skills (the ability of the brain to understand and interpret what the eyes see) for perceiving and discriminating form, space, and attributes of objects

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Visual motor skill affects students' academic success

- Weil and Amundson (1994) found that children who were able to copy the first nine designs on the VMI performed better on letter copying activities than those children who copied less than nine forms. (Dankert, Davies, & Gavin 2003)

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continued

Students use visual motor & perceptual skills for

- Handwriting
- Drawing
- Cutting
- Crafts & Projects
- Science experiments & labs
- Copying from the board
- Math
- PE, recess and socializing

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continued

Visual Motor skill foundations

- Fine Motor skills
- Ocular motor
- Visual perception
- Motor coordination
- Eye hand coordination
- Motor control & accuracy
- Sensorimotor skills

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Visual perceptual foundations

- **Visual discrimination** is the ability to be aware of the distinctive features of forms including shape, orientation, size, and color.
- **Visual figure ground** is the ability to distinguish an object from irrelevant background information.
- **Visual closure** is the ability to recognize a complete feature from fragmented information.
- **Visual memory** is the ability to retain information over an adequate period of time.

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Visual perceptual foundations

- **Visual sequential memory** is the ability to perceive and remember a sequence of objects, letters, words, and other symbols in the same order as originally seen.
- **Visual form constancy** is the ability to recognize objects as they change size, shape, or orientation.
- **Visual spatial skills** refers to the ability to understand directional concepts that organize external visual space.
 - These skills allow an individual to develop spatial concepts, such as right and left, front and back, and up and down as they relate to their body and to objects in space.

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Don't forget to also consider

- Oculomotor skills – visual screenings
- Visual fixation
- Visual pursuit
- Saccadic eye movements
- Acuity
- Accommodations
- Binocular fusion
- Stereopsis

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Don't forget to also consider

- Visual attention – relies on voluntary eye movements
 - Alertness, selective attention, visual vigilance, divided attention
- Visual imagery – requires visual cognition & memory
 - “picture” something in your minds eye

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Poor handwriting affects students

- A teacher may interpret the student's written responses as incorrect
- A teacher may interpret written work as an indication of noncompliance (i.e., the student is not making an effort to be neat)
- Students who have difficulty with handwriting must divert concentration and efforts to produce written work
- Students may attend less to the subject matter or to the instructor
- Students may turn in shortened written responses because the motor effort is fatiguing

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continued

Poor visual perceptual skills affects students

- Difficulty copying from the board or from near point
- Difficulty tracking while reading
- Difficulty interpreting visual instruction
- Poor handwriting skills
- Visual spatial organization for graphic organizers, worksheets, written assignments, illustrations
- Locating items in their desks and classroom
- Navigating the physical environment

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continued

What methods for handwriting instruction demonstrate efficacy?

- Teacher/OT modeling of letter formation
- Faded visual/verbal cueing
- Self direction (verbal self talk)
- Repeated practice
- Immediate teacher or OT feedback
- Self evaluation

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continued

What occupational therapy handwriting interventions have demonstrated effectiveness with at-risk students?

- Strategies to promote motor planning
- Activities to improve visual motor skills
- Sensory processing interventions
- Cognitive strategies such as self evaluation
- Motor learning strategies

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continued

Letter formation activities

- Thumb tacks
- Poking holes in paper
- Rolling playdough
- Stickers
- Tissue paper letters
- Rainbow letters
- Wikki Sticks

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Letter formation activities

- Use a gallon size Ziploc bag with hair gel ~16 oz & use your finger or a paintbrush to move the gel within the bag
 - add a few drops of food coloring if you want, maybe even some glitter
- Writing Wizard App on iPad

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continued

Spacing & line orientation activities

- Popsicle sticks
 - Have the student decorate their own stick for better buy in
- Using links to connect cards with words to form sentences
- Place stickers or fingerprints between words
- Use graph paper



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Sizing activities

- Pathways and mazes
- Dot to dots
- Wikki sticks on the lines
- Writing or drawing inside a hair tie or rubber band
- Draw boxes
- Teach the concepts of tall, short, fall letters
- Teach the concepts of the lines



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continued

Handwriting treatment activities

- Very Silly Sentence Game
- Jenga
- Thin Ice
- Guess Who
- Battleship
- Tricky Fingers
- Twisterz
- Bananagrams



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continued

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Handwriting activities

- Madlibs & Madlib Jr
- Secret codes
- Paper fortune tellers
- Tracing preferred characters with tracing paper
- Find and write fact about preferred topics

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continued

Handwriting activities

- Roll a Story using a dice for character, setting and problem
- Silly sentence starters
- Use a super silly picture and have your student write a story about what's happening in the picture
- Make up sentence alliterations – Peter Piper picked a pack of pickled peppers.

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Grading force for handwriting

- Use mechanical pencils with children who apply too much pressure to writing utensils
 - they learn quickly to grade force rather than constantly click for more lead, and when the lead is gone, it's gone, so they need to prevent lead breaks
- Draw on aluminum foil place tightly over the opening of a bowl/container without poking a hole in the foil
- Draw on paper on a carpet square

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continued

Visual perceptual activities

- Animal Soup
- I Spy books and games
- Tangrams
- Blokus
- Spot It



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Visual perceptual activities

- Pajaggle
- Zingo Board game
- Eye Found It!
- The Tower
- Tricky Fingers



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continued

Visual Perceptual activities

- Nada
- Balloon tennis
- Set
- Quick cups
- Grid based coloring activities using preferred theme
- Mirror image drawings
- Hitting a suspended ball with a bat
- Numbers and letters on ball
- Popsicle sticks patterns into putty



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continued

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Questions?

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It's elementary: Foundations for school readiness Virtual Conference

Mon 8/6	Sensory Regulation and Yoga Britt Collins, MS, OTR
Tues 8/7	Visual and Fine Motor Skills Emily Dassow, OTR/L
Wed 8/8	Executive Functioning in the Classroom Cara Koscinski, MOT, OTR/L
Thurs 8/9	Early OT Exposure (EOTE), A Mindful OT Screening & Intervention Angela Hissong DEd, OTR/L, CMCP, CMMF, CIR
Fri 8/10	Embedding School Based OT into Elementary Melanie Wheeler, OTD

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