Case

Many children ages 6 through 12 have difficulty with handwriting, and see a school-based occupational therapist seek improvement. To better help address their concerns, an occupational therapist is wondering what evidence is out there that shows which specific interventions are most effective in improving handwriting performance.

What is the effect of occupational therapy handwriting interventions on handwriting skills?

This CAT explores research on occupational therapy handwriting interventions to determine which ones are most effective on handwriting performance in a school-based setting.

1. Ask: Research Question
   In children ages 6 through 12, what is the effect of occupational therapy handwriting intervention on handwriting skills?

2a. Acquire: Search Terms
    Population/Client group: Child
    Intervention: Occupational Therapy handwriting intervention
    Comparison:
    Outcome(s): Handwriting skills

2b. Acquire: Selected Articles
    Case-Smith (2002): Comparative study of 52 students that examined the effect of school-based occupational therapy on handwriting legibility compared to a control group that did not receive intervention.
    Denton et al. (2006): Randomized control trial with 38 elementary students that measured the effectiveness of a sensorimotor group, a motor-learning group and a control group on handwriting performance.
    Ratzon et al. (2007): A randomized control trial that examined the effect of graphomotor intervention on writing readiness skills in 52 first-grade students.

3a. Appraise: Study Quality
    Case-Smith (2002): Suggestive: Demonstrated significant differences between groups, but sample sizes were not equal.
    Denton et al. (2006): Inconclusive: Insufficient number of participants.
    Ratzon et al. (2007): Suggestive: Showed a difference between groups, however, not all possible significant measurements and scores were taken.

3b. Appraise: Study Results
    Occupational therapy intervention including a teacher consultation, a combination of intervention strategies, and individualized treatment sessions were significantly more effective in improving handwriting legibility in comparison to no treatment (which was school as usual). Sensorimotor or motor-learning strategies in isolation were shown to not be effective in improving handwriting. These results suggest that sensory strategies should be used in combination with other handwriting interventions and that treatment should be individualized. However, more research is needed on which specific interventions are most effective: visual-motor, sensory approaches, motor-learning, developmental, behavioral, or activities to improve stability and strengthening. Furthermore, because the studies consisted of small sample sizes and generalizability of the results is limited, more studies would improve the quality of the evidence.

4. Apply: Conclusions for Practice
    Occupational therapy interventions are individualized, so treatment for clients in school-based settings should be planned in accordance to the specific handwriting needs of the client. For example, interventions utilizing visual-motor activities should be used with handwriting dysfunction clients who show visual-motor deficits in assessments. Due to the suggestive nature of the studies, these intervention approaches may also be used in conjunction with sensory integration techniques while closely monitoring client outcomes. Handwriting intervention is recommended, but techniques should be evaluated for their effectiveness with each individual client.

References


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? Unclear: Further research is needed to determine if occupational therapy handwriting interventions are effective for improving handwriting performance in children ages 6 through 12.