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Short-term sensorimotor based intervention for handwriting performance in elementary school children

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Statement of the Problem: Handwriting problems in childhood can have lifelong repercussions, affecting learning and career. Sensorimotor (SM) intervention therefore helps to alleviate these problems.

Aim: The purpose of this study was to evaluate the additive effects of SM intervention on the child's handwriting. Research questions involved the possible effects of the intervention on specific qualities of handwriting (legibility, form, alignment, size, and spacing) and on speed. Secondary research questions involved possible effects of training in teacher assessment using the HPSQ and grip strength.

Methodology: Thirty-one students (16 boys, 15 girls) were screened using Minnesota Handwriting Assessment (MHA) to assess legibility, form, alignment, size, and spacing (the primary variables) as well as rate. Finally, 10 students (seven boys, three girls) aged 6–8 years (mean age, 77.1±1.45 months) participated in an intervention program. Baseline MHA, Handwriting Proficiency Screening Questionnaire (HPSQ), and grip strength were measured. The same group of students acted as their own controls and was analyzed before the interventions and later after completion of the protocol. The SM-based intervention group met twice per week (Monday and Wednesday) from 11:45 am to 12:35 pm for 5 weeks during regularly scheduled school hours. Each 40 min. session consisted of 10 min. of gross and fine motor warm-up activities, followed by 30 min. of SM component activities in visual perception, visual-motor integration, proprioception/kinesthesia, and in-hand manipulation.

Findings: There was a significant improvement in MHA scores for legibility, form, alignment, size and spacing ($P < 0.05$), with the exception of rate. There were also significant changes in legibility, time performance and physical and emotional wellbeing domains in the HPSQ, and grip strength ($P < 0.05$, paired t-test).

Conclusion & Significance: Short-term sensorimotor-based intervention produced significant improvements in the handwriting performance of elementary school children.

Biography

Ganeswara Rao Melam is a Researcher in Rehabilitation Department, College of Applied Medical Sciences at King Saud University, Riyadh. Formerly, he worked as an Associate Professor and Head of Physiotherapy Department at Maharishi Markandeshwar University, Ambala, India. He has obtained his Master's degree in Physiotherapy (Neurology) from Hamdard University (2004), New Delhi, India. He has published 24 international articles, and is an active member of pediatric research group under the leadership of Dr. Adel A Alhusaini. Presently, he is working on the KACST project regarding sedentary behavior characteristics and physical activity levels in children of Saudi Arabia.

Syamala Buragadda received her master's in 2005 from Dr.NTR University of Health Sciences (India). In 2011 she moved to King Saud University (KSA) to work as researcher. Her work has been highly influential in Women's health and Pediatrics and has been referenced several times. She held a fellowship Diploma in Clinical Rehabilitation-London Academy of Sports and Health Sciences, UK. Her current research interests include the Obesity, physical activity, maximum walking speed, sedentary behavior and academic performance in Saudi school children and Fear avoidance beliefs and health literacy among Saudi women with chronic low back pain. This research is currently changing the way of physical inactivity and sedentary behaviors, with particularly promising results in physical activity among children and women. She has published 24 international articles, and an active member of pediatric research group and quality committee in the Rehabilitation department of King Saud University.

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