Non-proficient handwriting (NPHW): a decisional tree to guide the assessment and the intervention

Introduction: Endogenous and exogenous factors influence quality and speed of handwriting. Non-fluent or non-readable handwriting can affect the participation of the child in school. Non-proficient handwriting (NPHW) can be related to the dysfunction of endogenous factors such as digital dexterity, proprioception, visual motor integration, visual perception, visual attention or memory. These factors can also be included in a more global diagnosis of developmental disorders such as Developmental Coordination Disorder (DCD), specifically in the subtype “fine motor skills dysfunction and graphomotor disorders”, dyslexia, Learning Disorders and Attention-Deficit Hyperactivity Disorder. Exogenous factors include inappropriate handwriting teaching methods, position of the child, the type of paper and writing tools as well as adverse sociocultural conditions. Children with NPHW are often referred for intervention. Assessment of children is needed in order to identify the causes of NHPW. In fact, effective intervention should target the specific causes of the NPHW, whether due to exogenous or endogenous factors. Therefore, a decision tree was needed in order to guide the assessment and to allow professionals to first identify the need for intervention and then to choose the most efficient approach in relation to the causes of NHPW and the age of the children concerned. Method: A systematic review was used to establish this decision tree, on the one hand with regards to endogenous and exogenous factors that can influence handwriting and, on the other hand, concerning the most efficient approaches that have been identified in the domain of instruction and remediation of handwriting as well as in the domain of therapy. Results: The results of the studies that make up the foundation of this decision tree will be presented along with the decision tree itself. Case studies will be presented in order to illustrate the process. Generally speaking, if only exogenous factors are involved in NHPW, the remediation will focus on these factors specifically and therefore directly on handwriting at school. When endogenous factors such as fine motor skills are found to be the cause, intervention will target fine motor skills as well as handwriting. Conclusion: Although further studies are needed to prove the pertinence of this decision tree for assessment and intervention, this work already helps professionals to identify different profiles of children with NPHW and to choose the most appropriate intervention with respect to the factors which are involved.