How do Children Who are Clumsy Remember Modeled Movements? (Abstract)

Skorji, V. & McKenzie, B. (1997). How do children who are clumsy remember modeled movements? *Developmental Medicine and Child Neurology*, 39, 404-408.

The ability to reproduce movement sequences was examined in children with and without clumsiness. Forty children age 8 to 12, 20 with and 20 without clumsiness were included as subjects. The Test of Motor Impairment was used to evaluate motor skill and determine inclusion into the clumsy group. Of the 20 in each group, 14 were male and 6 female. The groups were matched for age, grade, school and performance IQ.

Each child was instructed to perform 34 movements, 13 arm movements, 15 leg, 2 head, and 4 whole body motions. Motions were demonstrated, then there was a 15-second delay before the child was allowed to perform the motion. During this time, 4 different kinds of interference were introduced. Interference was either visual or kinesthetic and either with a high or low spatial component. The specific interference was watching a flashing light (low spatial), watching a moving flashing light (high spatial), tapping fingers on the table (low spatial), or tapping fingers around the edge of a circular container (high spatial). Children were tested individually, with 2 practice trials before the 20 test trials. The test trials included 4 with immediate recall of motions (no interference) and 4 each of each interference condition. All trials were videotaped for scoring.

Both groups of children performed similarly in 3 of the conditions. Only in the visualhigh spatial component condition were the clumsy children inferior in reproducing the motions. There was no difference between the two groups on immediate recall, although for both groups all scores were lower with the 15 second delay. Sequenced motions were scored both with and without regard for the order of the sequence. When scored for order, clumsy children performed more poorly, indicating poor memory for sequences. The results suggest that clumsy children rely on visual spatial rehearsal of the movements rather than kinesthetic.