

MOTOR TASK PERFORMANCE UNDER VISUAL AND AUDITORY FEEDBACK POST STROKE: A RANDOMISED CROSSOVER TRIAL

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Introduction: Biofeedback tools have been used in stroke rehabilitation to improve motor performance. In a previous study, we tested a biofeedback system based on inertial motion trackers, coupled with a vibratory module. Limitations of vibratory feedback, combined with data showing efficacy of combining visual and auditory feedback, justified changing the biofeedback.

Purpose: Follow-up study to assess whether visual and auditory feedback could improve motor performance of patients after stroke.

Method: Randomised controlled study (NCT03032692) involving 30 patients. Participants were allocated to two groups; both performed one exercise with the affected upper-limb with and without biofeedback. Primary outcome was the number of correct movements, defined as those starting at the baseline and reaching the target joint angle, without violating movement or posture constraints.

Results: The number of correct movements was higher in the sessions with feedback by an average of 13.2 movements/session (95% CI [5.9; 20.4]; $P < 0.01$) and movement error probability was decreased from 1:1.3 to 1:7.7.

Discussion and Conclusion: This study corroborates published data on the benefits of visual and auditory feedback. This feedback appears superior to the vibratory feedback, allowing more information to be presented to the patient, increasing the focus on movement quality. Further investigation is needed to confirm clinical benefits.