Muscle synergies with Walkaround® postural support vs. “cane/therapist” assistance

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References:

Abstract:
BACKGROUND: The main clinical measures of walking recovery in stroke patients were compared for training assisted by Walkaround® postural support (WPS) and conventional (CON) support by a cane/therapist.
OBJECTIVE: We attributed the differences between the trainings to modified muscular synergies that occurred during assistance by WPS.
METHODS: We studied the muscle activities of the primary knee and ankle joint movers in the paretic and non-paretic legs of sub-acute stroke patients during assisted walking with WPS and CON. Recorded signals were compared to normative data that were recorded during speed-matched gait trials in healthy subjects. The specific measures were the relative contribution of individual muscles, levels of cocontraction, and the timing of the maximum electromyography (EMG) activity during the walking sessions.
RESULTS: We found that, for most patients, the individual contribution of muscles were more similar to the healthy with the WPS assistance. In parallel, the cocontraction of the rectus femoris muscles in both legs was lower (by up to 39 %) during walking assisted by WPS than by cane/therapist gait support; the results from this case series (10 patients) showed that WPS might be the superior training scheme.
CONCLUSIONS: These findings indicated that assistance by WPS changed the motor control output relative to CON assistance in most patients.

Keywords:
rehabilitation, posture, EMG, synergy, stroke