

ASSESSMENT AND VISUALISATION OF DAILY-LIFE ARM MOVEMENTS AFTER STROKE

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ABSTRACT

For an optimal guidance of the rehabilitation therapy of stroke patients in an in-home setting, objective, and patient specific assessment of upper extremity task performance is needed. Towards this goal, metrics of hand position relative to the pelvis were estimated and visualized.

Using a body-worn ambulatory movement analysis system [1], hand positions were estimated in 13 stroke subjects while performing a simulated daily-life task [2]. Hand positions were visualized and derived metrics were correlated with results of the upper extremity part of the Fugl-Meyer Assessment scale (uFMA). These metrics, including work area and maximum reaching distance, appeared to strongly correlate with uFMA scores ($r > 0.84$, $p < 0.001$).

Proposed metrics and visualisation can be used to objectively assess the arm movement performance over a longer period of time in a daily-life setting, if combined with info about performed task derived from a activity monitor. Further developments are on the body-worn sensing system for a more general acceptance of the system in a daily-life setting and testing the new system with stroke subjects in a daily-life setting [3].

REFERENCES

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