Estimating qualitative parameters for assessment of body balance and arm function

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Objective – monitoring capacity and performance of body balance and arm function in stroke patients during daily life.

Body balance: estimating the movement of center of pressure (CoP), centre of mass (CoM), stance time and step length [1].

Arm function: estimating trunk orientation, lower and upper arm movements and deltoid muscle activity [2,3].

Method – evaluation of kinetics and kinematics using Xsens MVN Biomech and Xsens Instrumented ForceShoes™ while performing arm movements, walking 10 meters and doing a combination of tasks.

Results – Metrics and visualisation:
- Man (47 yrs) left side affected, Berg Balance Scale: 53

Overall results – Left - Mean stance time for affected vs non affected. Right – Mean step length for affected vs non affected. 13 stroke survivors during different tasks. Mean age of 63.9 (SD ± 9.0) years and 2.3 (SD ± 1.8) years post stroke

NeuroCIMT Project 7 – Wearable Neuro Biofeedback
- Minimal Sensing Systems with Bio Feedback
- Objective information Collection
- Direct Real time feedback

References

Conclusion – Qualitative parameters of body balance and arm function in stroke patients can be estimated using the INTERACTION system in a simulated ambulatory setting.