

# Master – Thesis

## The effect of a dual task condition on kinematic parameter during activities of daily living (ADL) in elderly

Using more than one limb during the performance of functional, goal directed actions is one of the most crucial abilities of the human being. In consequence, especially the hands are needed to accomplish a diversification of goals in everyday live.

The aging process impacts the execution-performance of simple as well as complex tasks like ADLs. However, still comparable little is known about the influence of the aging process on ADL kinematics. Furthermore, as experimental tasks are mainly performed one by one with short breaks in between, it may not reflect the extensive demands of daily life.

There is increasing literature investigating dual task conditions with regard to lower extremity measurements (e.g., gait and posture). So far, little is known about the impact of dual task conditions on upper extremity function.

### Methods:

Motion capturing system; cognitive tests

### Question:

The main objective of this project is to investigate the influence of a cognitive dual task condition on kinematic parameter measured during an ADL task in older adults.

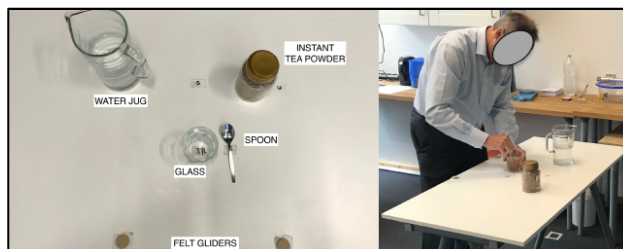


Fig. 2: left: setting of the task „tea making“, right: an older participant executing the tea making task in the lab

### Information/Literature:

Kalisch, T., Wilimzig, C., Kleibel, N., Tegenthoff, M., & Dinse, H. R. (2006). Age-Related Attenuation of Dominant Hand Superiority. *PLoS One*, 1(1).

Amanzio, M., Palermo, S., Zucca, M., Rosato, R., Rubino, E., Leotta, D., . . . Rainero, I. (2018). Neuropsychological correlates of instrumental activities of daily living in neurocognitive disorders: a possible role for executive dysfunctions and mood changes. *International Psychogeriatrics* (23), pp. 1-11.

Ghai, S., Ghai, I., Effenberg, A. O. (2017). Effects of dual tasks and dual-task training on postural stability: a systematic review and meta-analysis. *Clinical Interventions in Aging* (12), pp.557-577.

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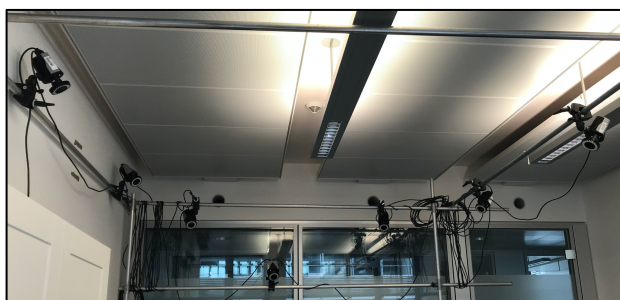


Fig. 1: Qualysis motion capturing system including 7 Oqus cameras in the lab of Human Movement Science

