The objectives of this study were twofold:
1. Develop two functional tasks that mimic activities of daily living requiring precision, accuracy, and require force modulation
2. Create a comprehensive set of normative upper body kinematics for those tasks that can be exhibited representative ranges of upper limb motion

Moreover, to quantitatively assess upper limb function, a multi-body kinematic assessment is essential. In this context, using motion capture is a valuable tool to quantify compensatory movements in populations with upper limb impairments. Such compensations often put people at risk for overuse and other types of upper limb injuries.

The joint patterns exhibiting the greatest range of motion were:
- shoulder flexion/extension
- elbow flexion/extension and pronation/supination
- wrist flexion/extension during the cup transfer task

Some differences in end-effector metrics can be observed between the two tasks:
- pasta box task displayed smoother and single-peaked trajectories for hand velocity
- the percent to peak velocity for the cup transfer task was more variable across segments than for the pasta box task

The results of this study have high clinical significance as they provide an extensive summary of normative upper body kinematics during functional upper limb tasks. These norms will be used as a benchmark for assessing upper limb impairments, advanced assistive technologies, and performance improvements over time.

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