

Dual-Layer Electrodes with Head-Mounted Amplification for Artifact Suppression in mobile EEG

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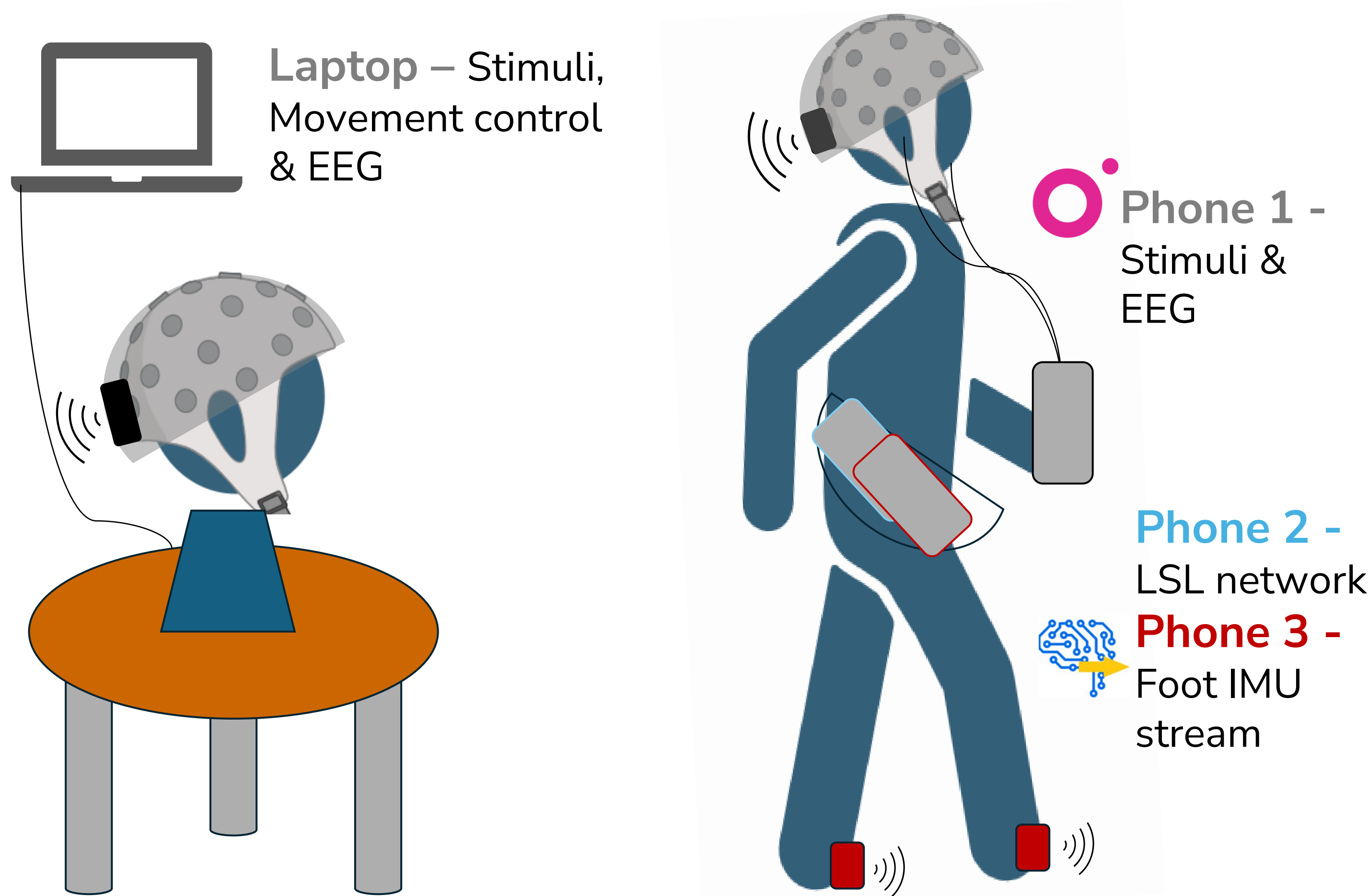
INTRODUCTION

Over the last 15 years, advances in mobile EEG research have led to important insights into the human brain in various everyday life situations. Still, EEG is susceptible to motion artifacts caused by multiple sources. Efforts to comfort motion artifacts in mobile EEG include prevention by hardware configurations, [1,2,3] or modern signal processing techniques [4].

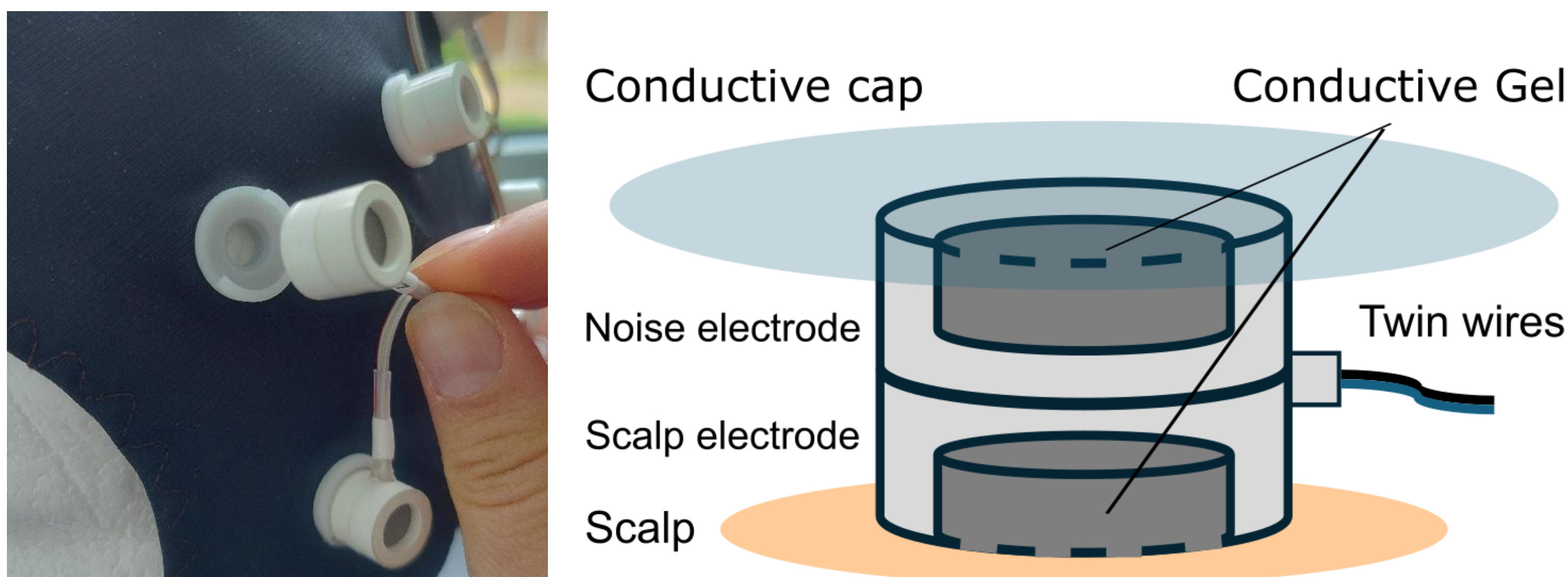
We investigated whether combining dual-layer electrodes with a passive, head-mounted EEG system in combination with a canonical correlation-based artifact suppression benefits signal quality. We compared two pipelines: one including the noise layer and iCanClean, and one without taking the noise layer into account.

METHODS

Study design: Phantom head and participant recordings

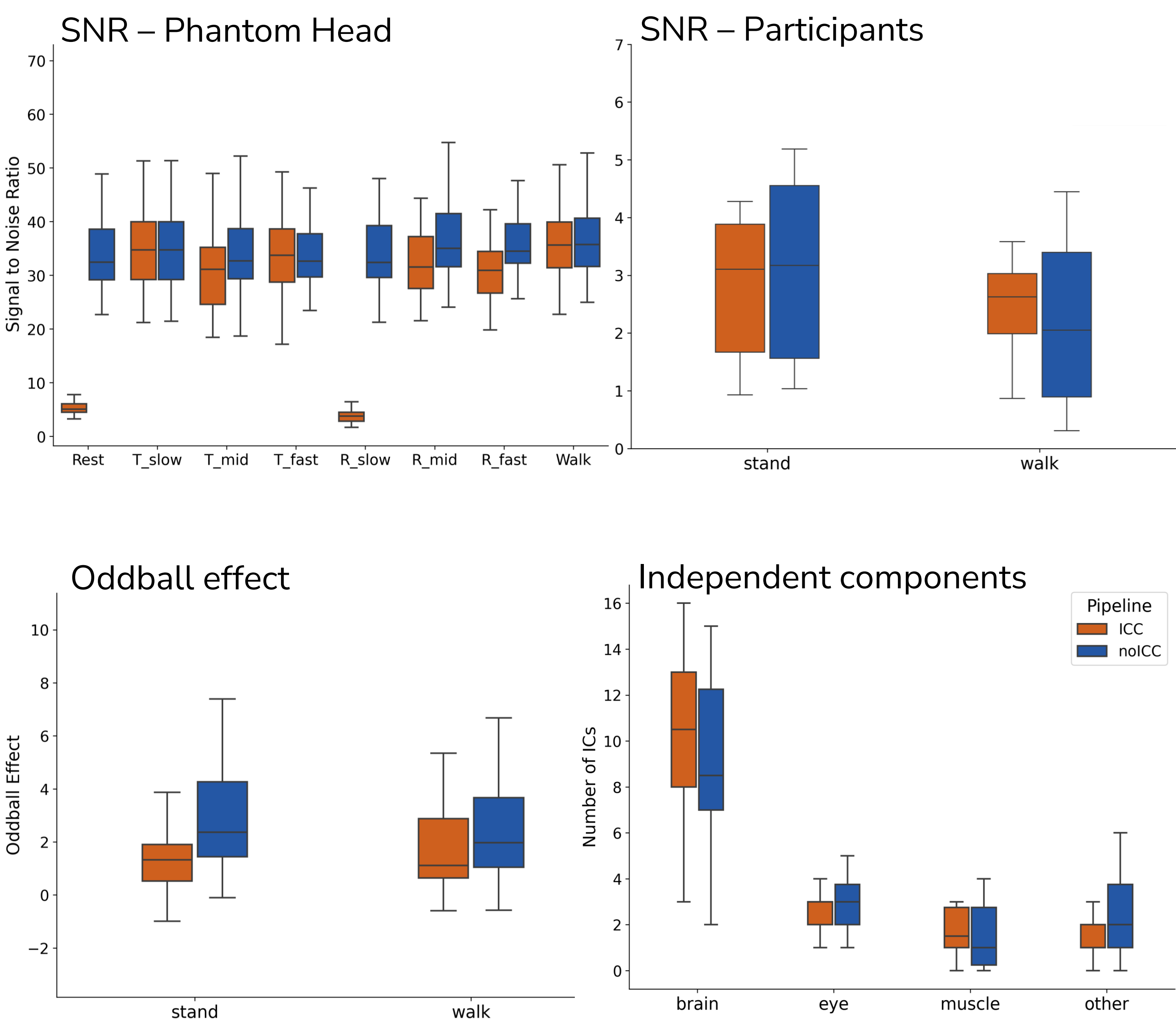


Hardware: Passive dual-layer electrode and cap setup

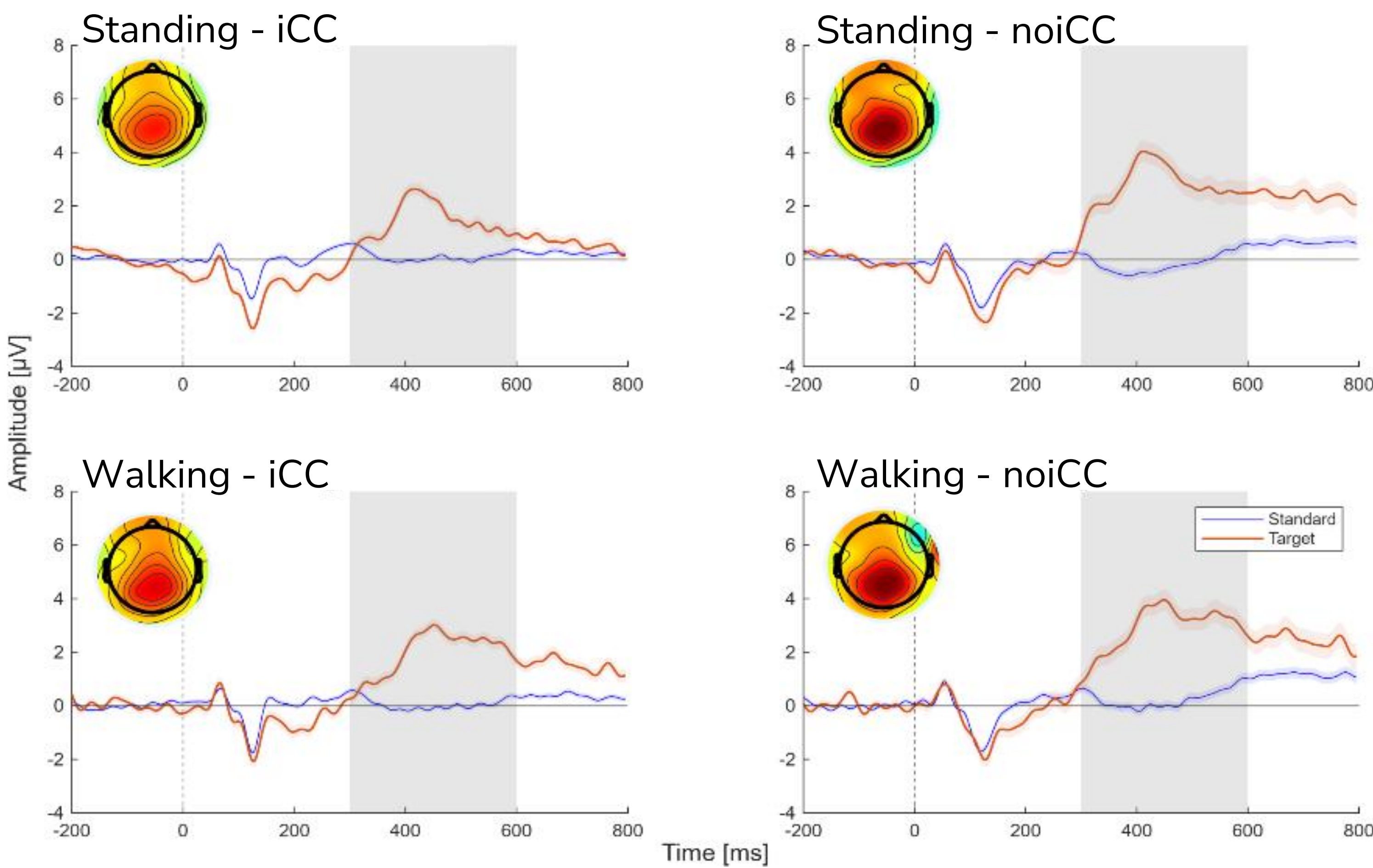


RESULTS

Data Quality: No advantage of iCanClean



Participant ERPs: No advantage of iCanClean



DISCUSSION

We did not find a beneficial effect of the noise layer and iCanClean. The results suggest that the data involved too little movement artifacts to begin with. This is supported by the high data quality observed in the data preprocessed without the iCanClean algorithm. Future studies should involve more intense movements.

