Influence of Static Stretching and Repeated Maximal Contractions on Readiness Potential and Motor Output

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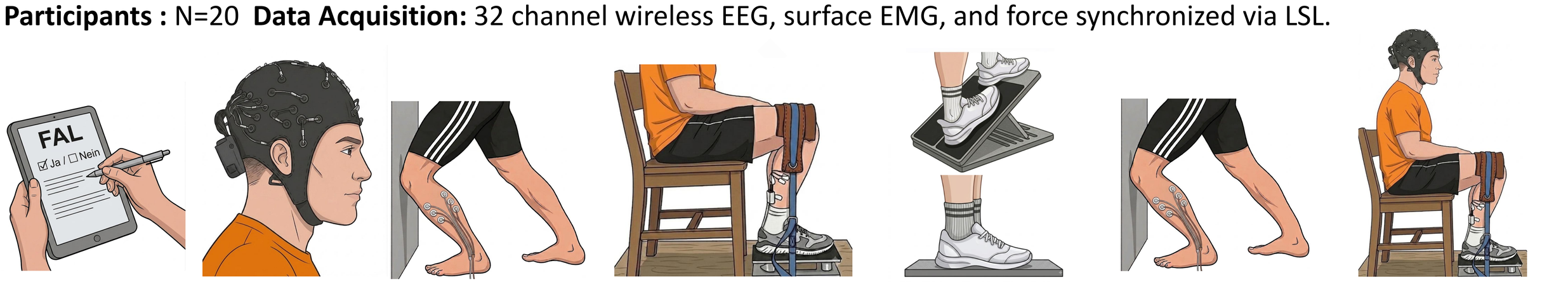
INTRODUCTION

- Repeated maximal voluntary contractions (MVC) of the plantar flexors reduce both force output and EMG amplitude.[1,2]
- The Readiness Potential (RP), a cortical measure of movement preparation, which becomes larger (more negative) across repetitive series.[3]
- Static stretching reduces maximal force independently of prior physical work, creating a deficit that is distinct from muscle fatigue. [4]

Does a pre- to post-test-block reduction in maximal force output correspond to a larger RP amplitude, and does this effect differ between static stretching and passive standing?

METHODS

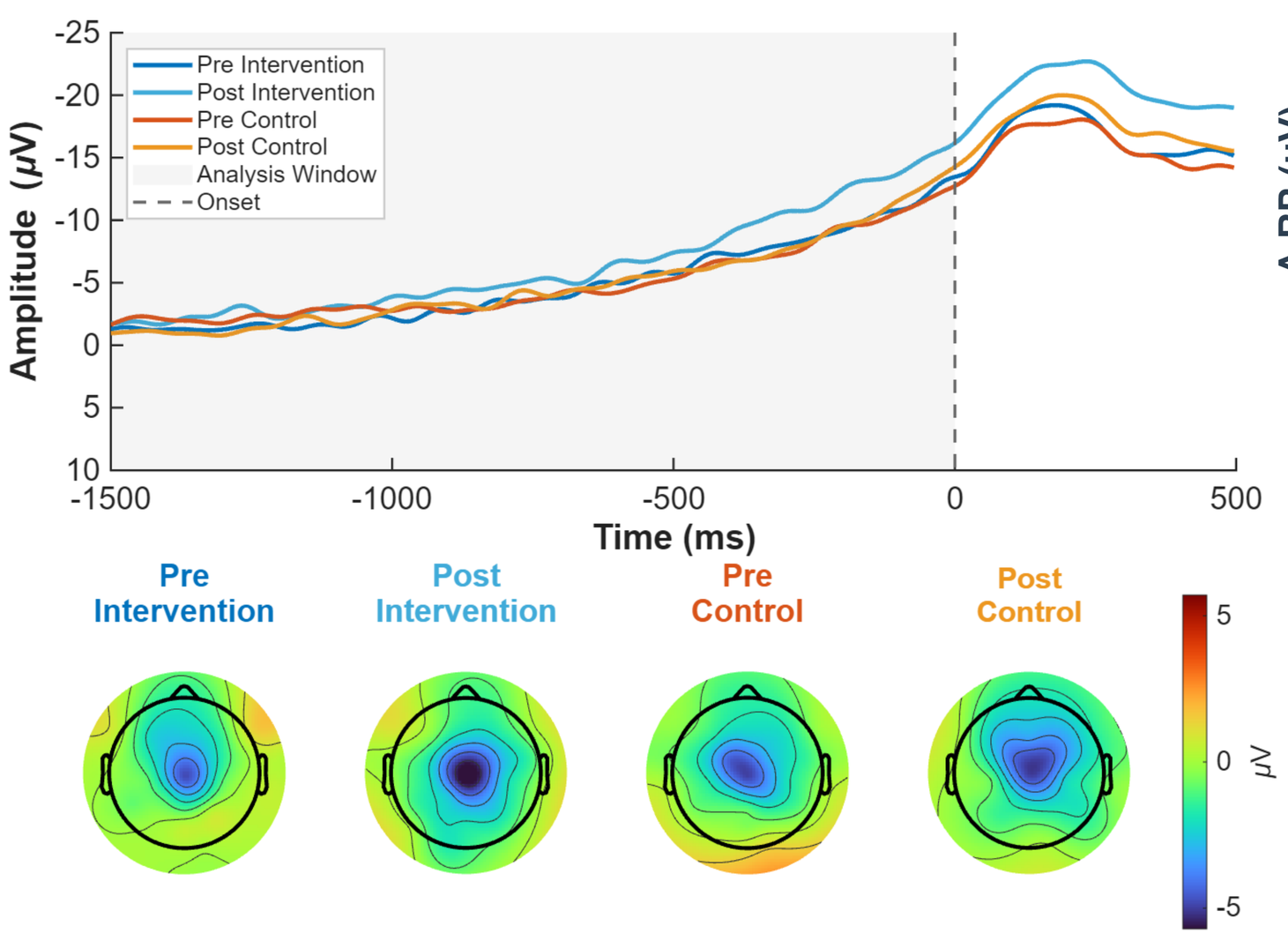
Participants : N=20 **Data Acquisition:** 32 channel wireless EEG, surface EMG, and force synchronized via LSL.



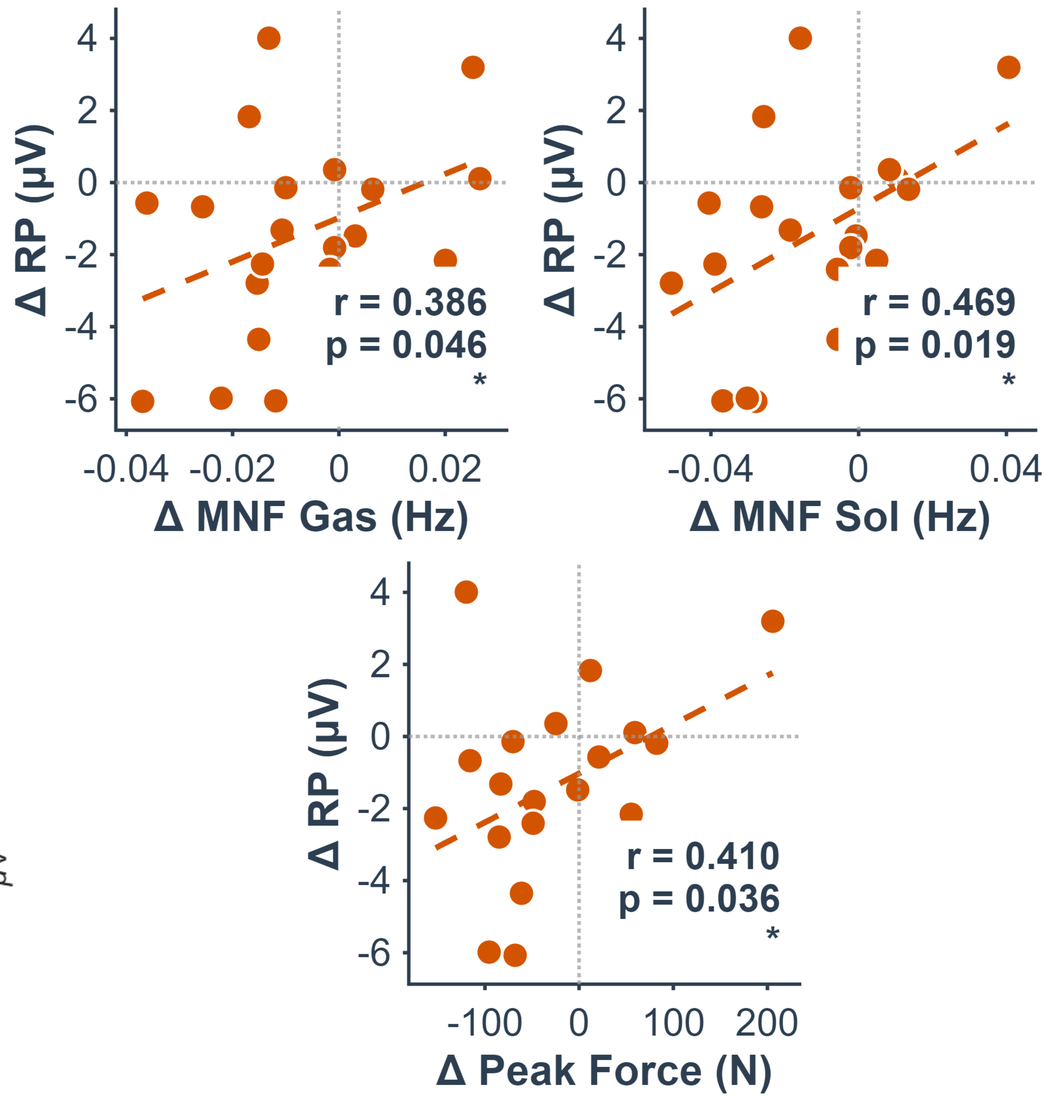
Questionnaire | EMG and EEG preparation | Knee-to-wall test | Pre-Intervention 30 MVC | Intervention or Control (15 mins) | Knee-to-wall test | Post-Intervention 30 MVC

RESULTS

Grand Average ERP at channel Cz and topoplots



Correlation between RP and peripheral measures



CONCLUSION

While EMG and force did not change in response to stretching, RP increased an amplitude indicating dynamic relationship between muscle and brain.

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4.Babault et al., (2010). *Journal of Science and Medicine in Sport*, *13*(2), 247–252.

Experimental schematic graphics in the Methods section were generated using AI