



Nocebo-induced changes of corticospinal excitability: a TMS study

N Corsi¹ – M Emadi Andani^{1,2} – M Tinazzi¹ – M Fiorio¹

¹ Department of Neurological and Movement Sciences, University of Verona (Italia)

² Department of Biomedical Engineering, University of Isfahan (Iran)

Background

The Nocebo effect can be induced by influencing subjects about the detrimental effects of a treatment on motor performance. The neurophysiological underpinnings of this effect are still completely unknown. By using transcranial magnetic stimulation (TMS) over the primary motor cortex, we investigated whether a nocebo modulation of force could change the excitability of the corticospinal system.

Task

Force production measurements were obtained by asking healthy volunteers to perform abduction movements of the right index finger (FDI muscle) to press a piston connected to a force transducer. During the main task, subjects had to press the piston in order to move the cursor toward the target zone; in the TMS-task, participants had to maintain the cursor stable on a red line, representing the 30% of MVF, until the TMS pulse was triggered.

Participants

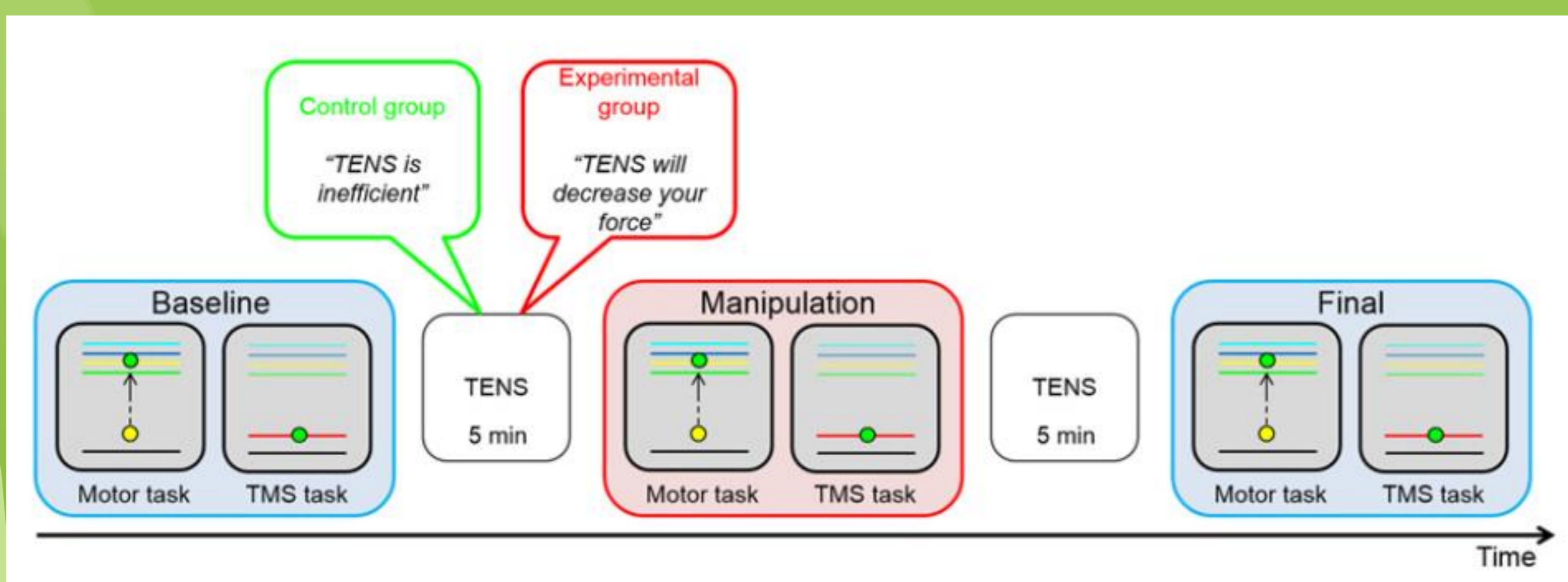
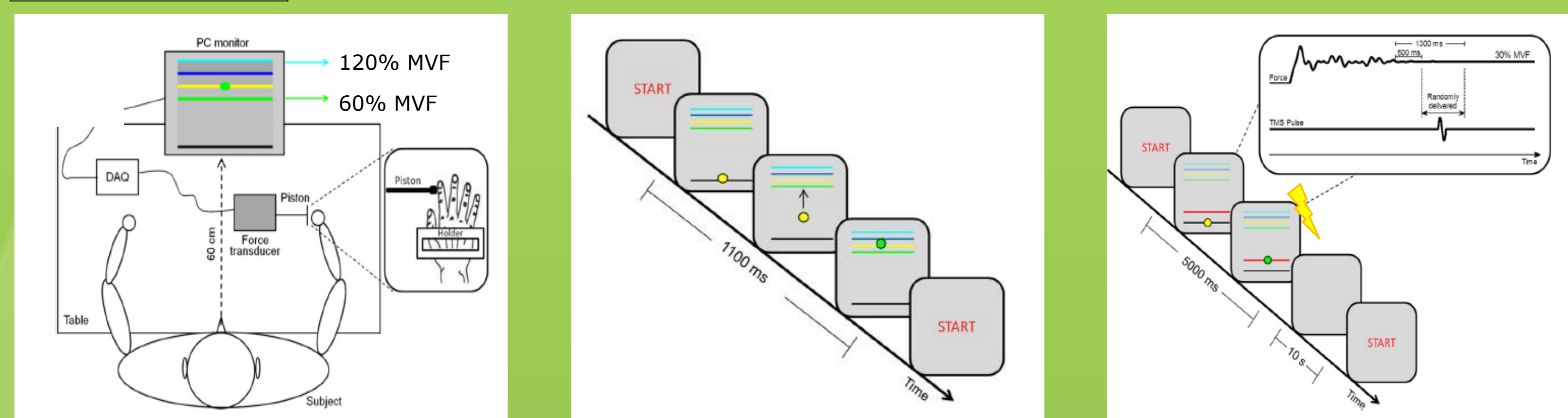
Experimental

N=17 (7 F)
mean age 23.3 ± 0.6

Control

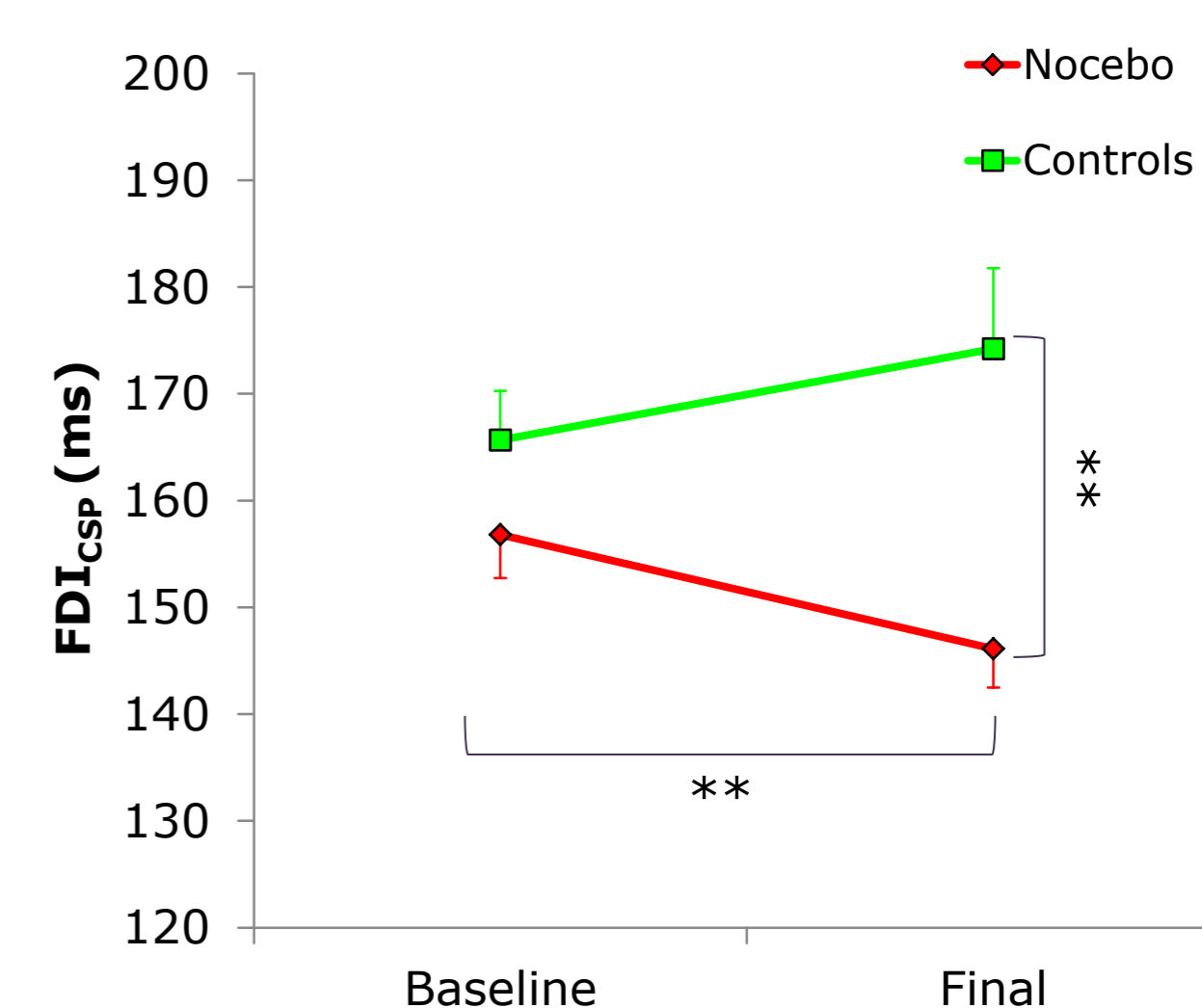
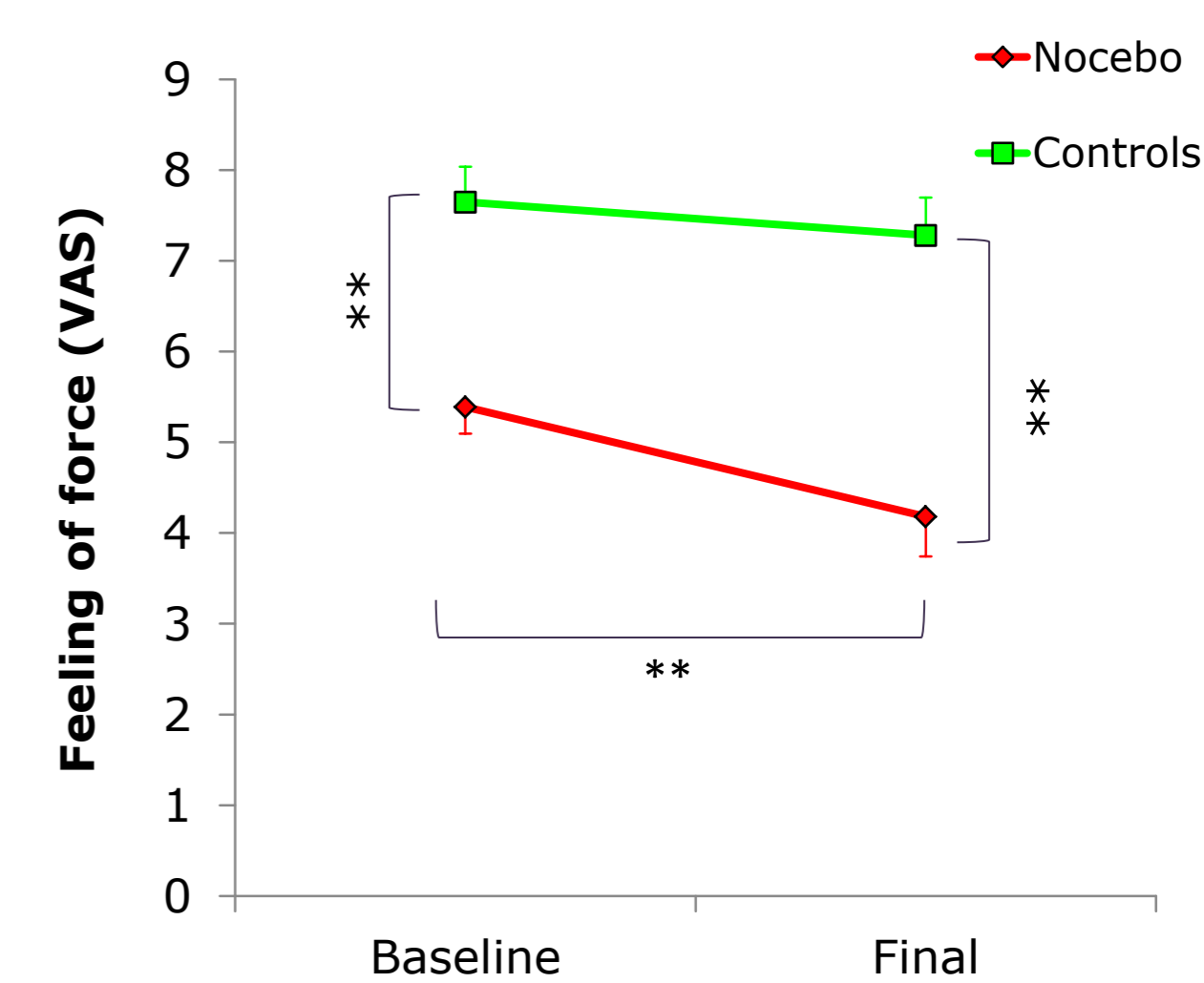
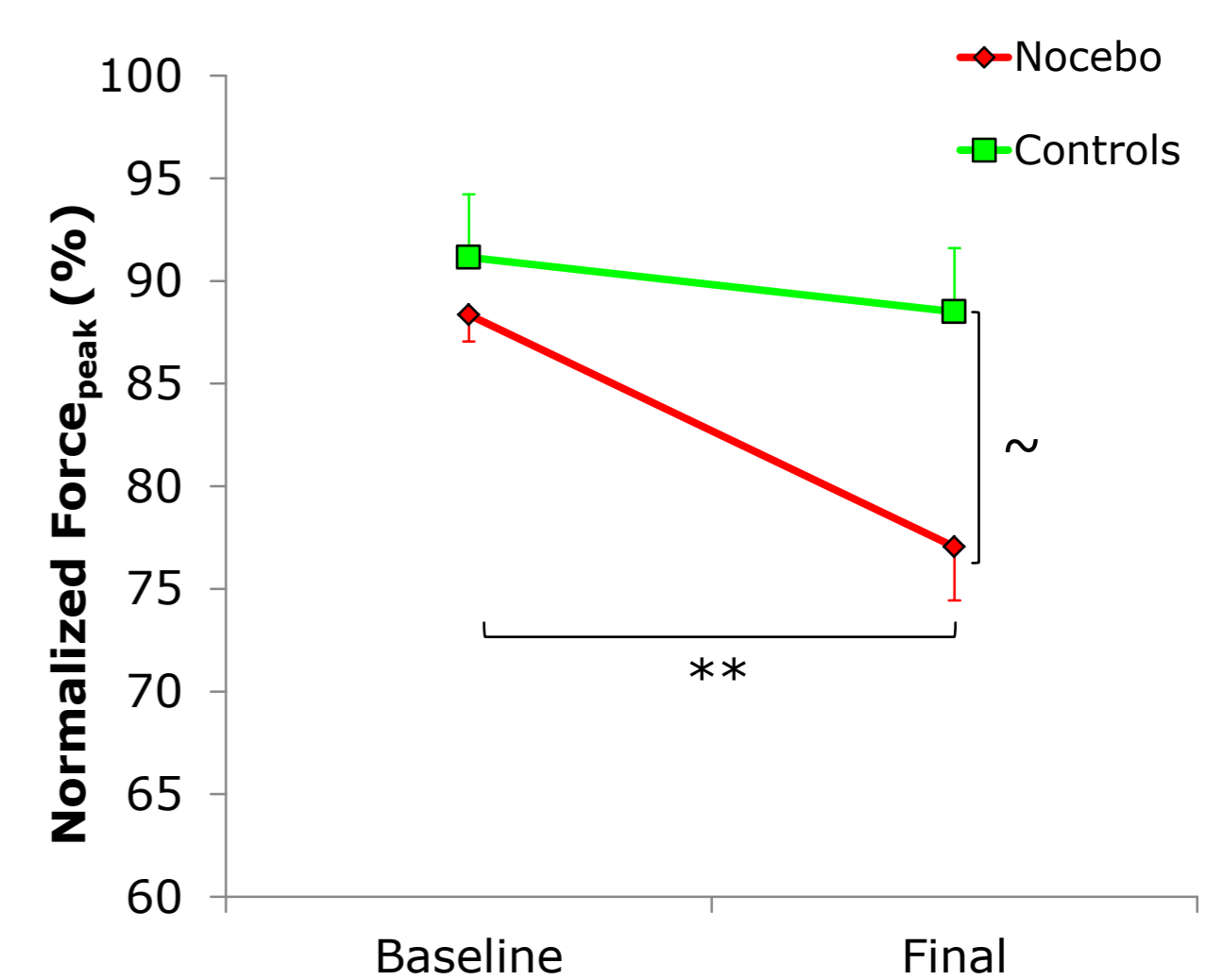
N=15 (9 F)
mean age 22.1 ± 0.5

Procedure



Results

* p > 0,050; ** p > 0,010



Take home message

The change of CSP duration, and not of MEP amplitude, would suggest that the nocebo procedure may impact more on inhibitory circuits rather than on excitatory circuits.

These findings hint at a top-down modulation of corticospinal excitability, as a neural signature of nocebo modulations in motor performance.

Bibliografia

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Università degli Studi di Verona



Nicole Corsi – PhD Student
 Dipartimento di Scienze Neurologiche
 e del Movimento - Università di Verona
nicole.corsi@univr.it