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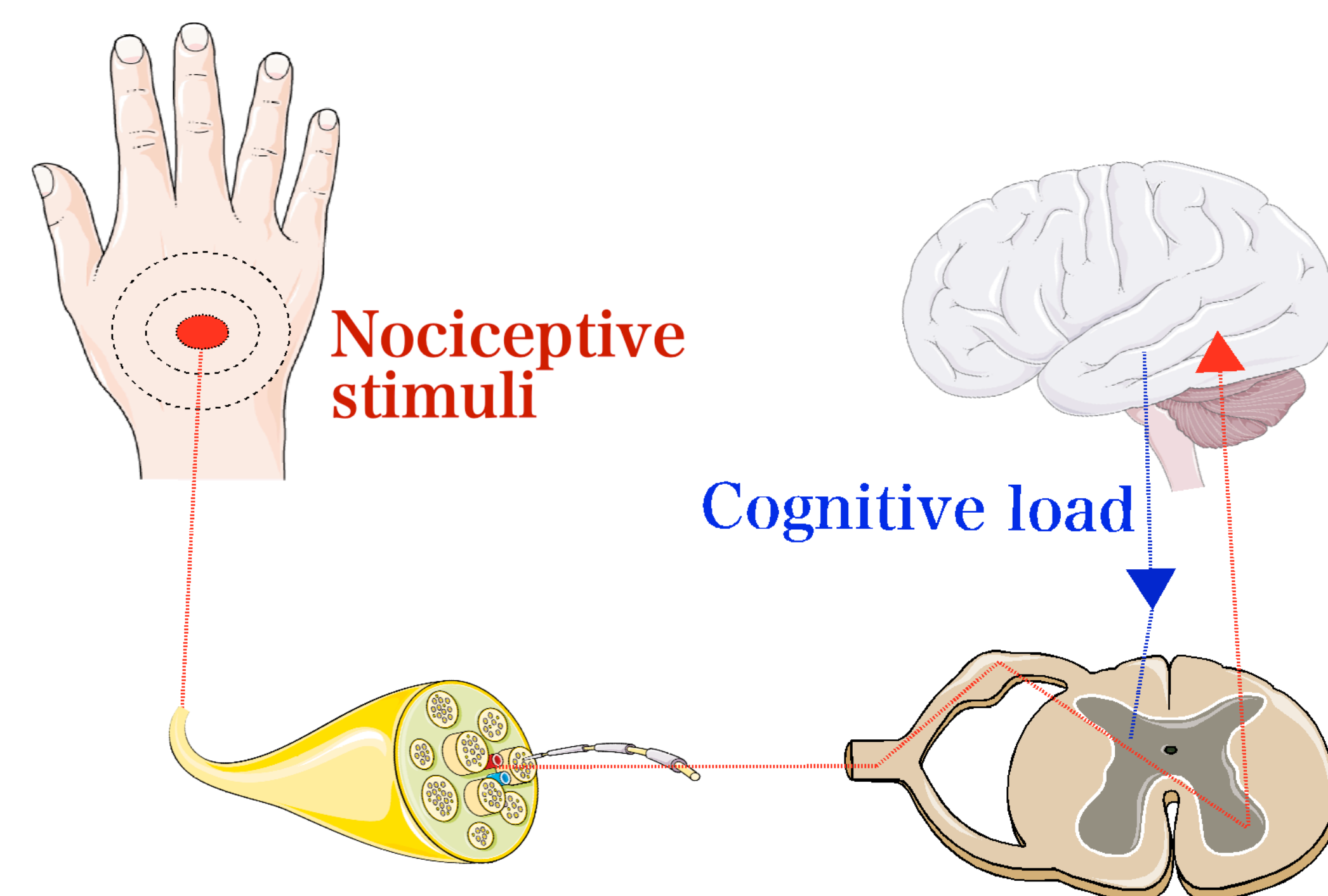
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Introduction & Aim

Theoretical work has suggested that focusing attentional resources towards **pain-unrelated, engaging and demanding cognitive tasks** may present a **top-down modulatory mechanism for persistent pain**. However, conclusive empirical evidence is lacking.

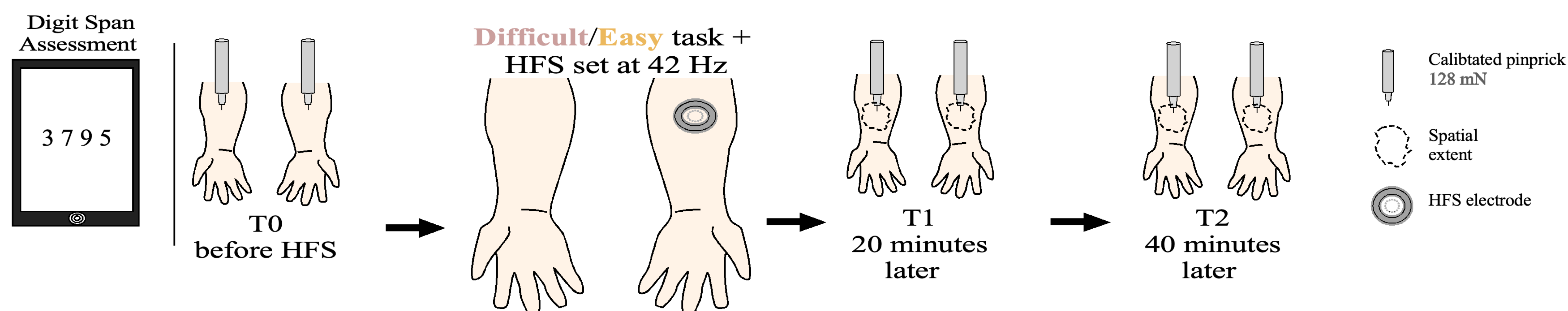
AIM: Using a double-blind, between-subjects study design to investigate whether performing an **individually tailored, high demanding, engaging working memory task (difficult task)** VS a low demanding cognitive task (**easy task**), attenuate the development of secondary hyperalgesia - induced using high-frequency electrical stimulation (HFS).



Method

TASK:

Pre HFS = 10 trials
During HFS = 12 trials
Post- HFS = 6 HFS

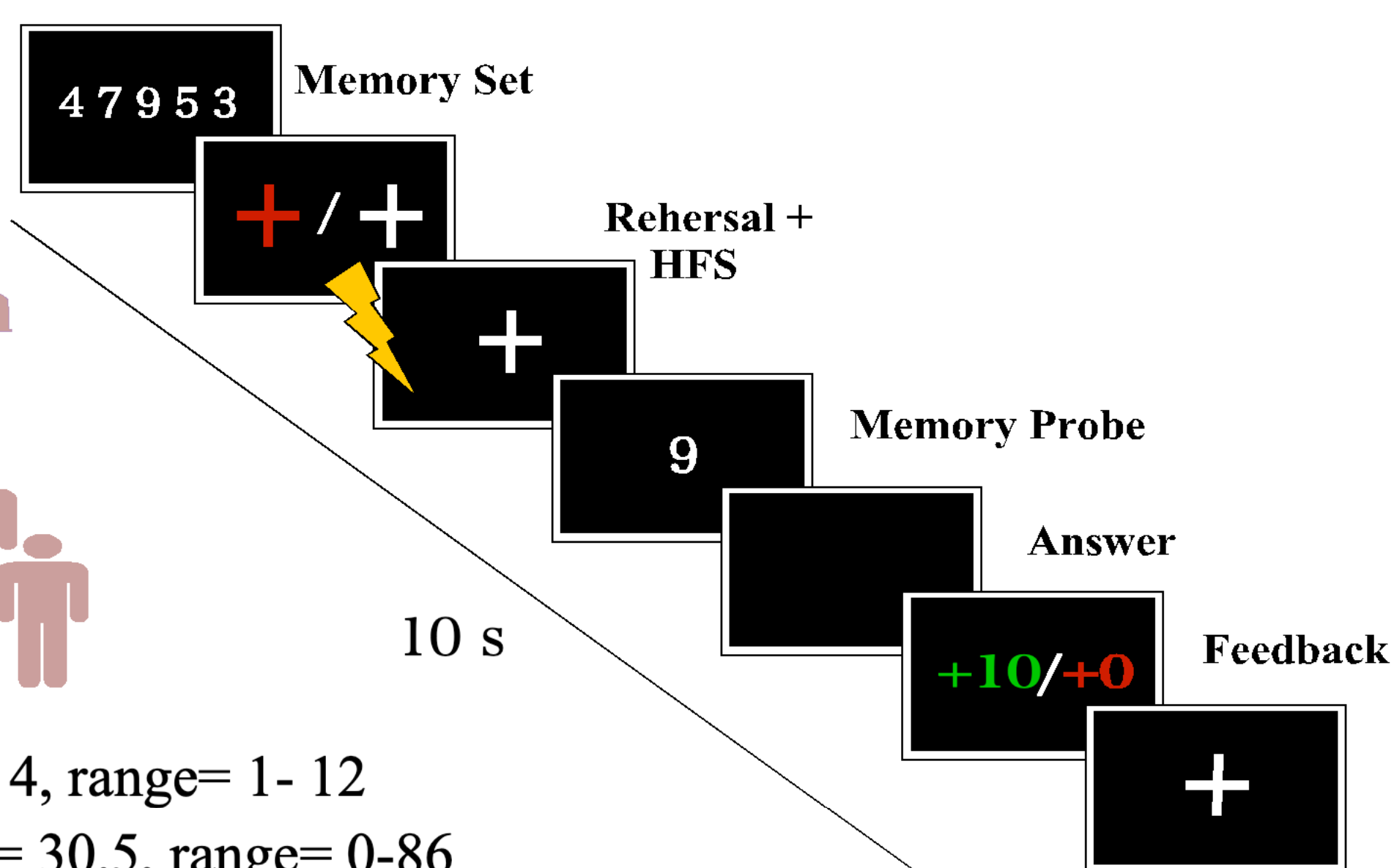


Difficult Condition

N= 42



Accuracy: Mdn= 7, IQR= 4, range= 1- 12
Difficulty: Mdn= 44, IQR= 30.5, range= 0-86

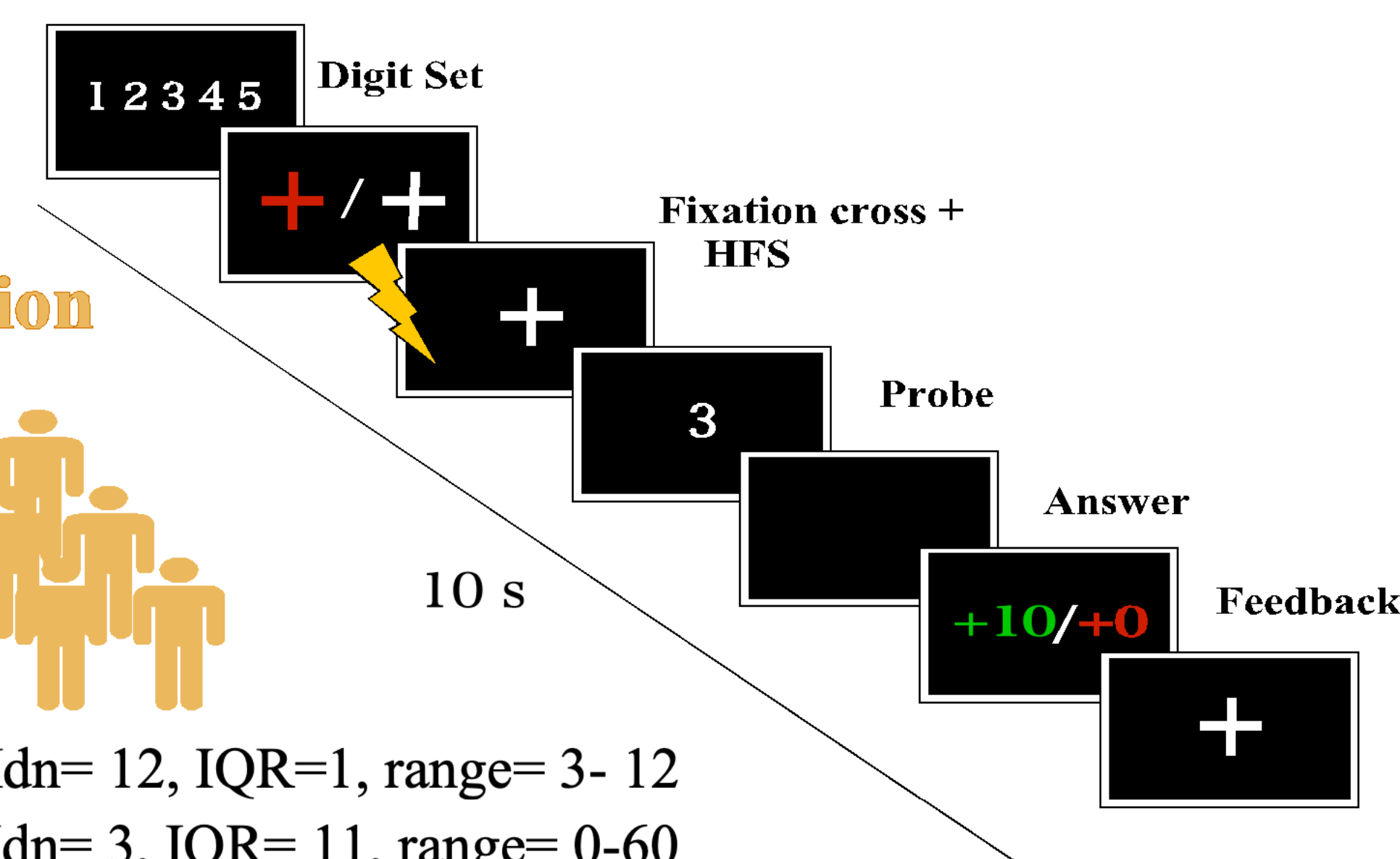


Easy Condition

N= 43



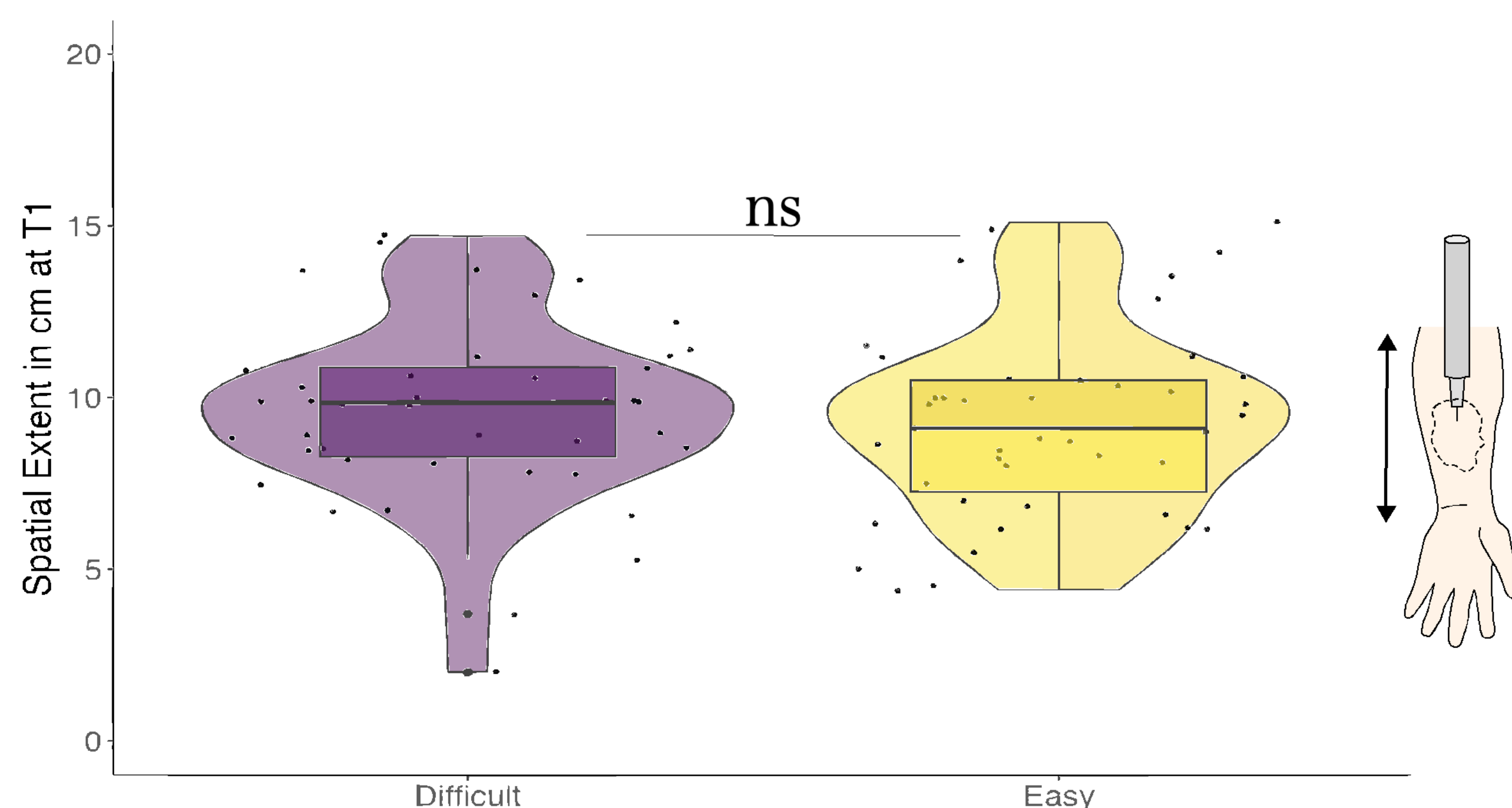
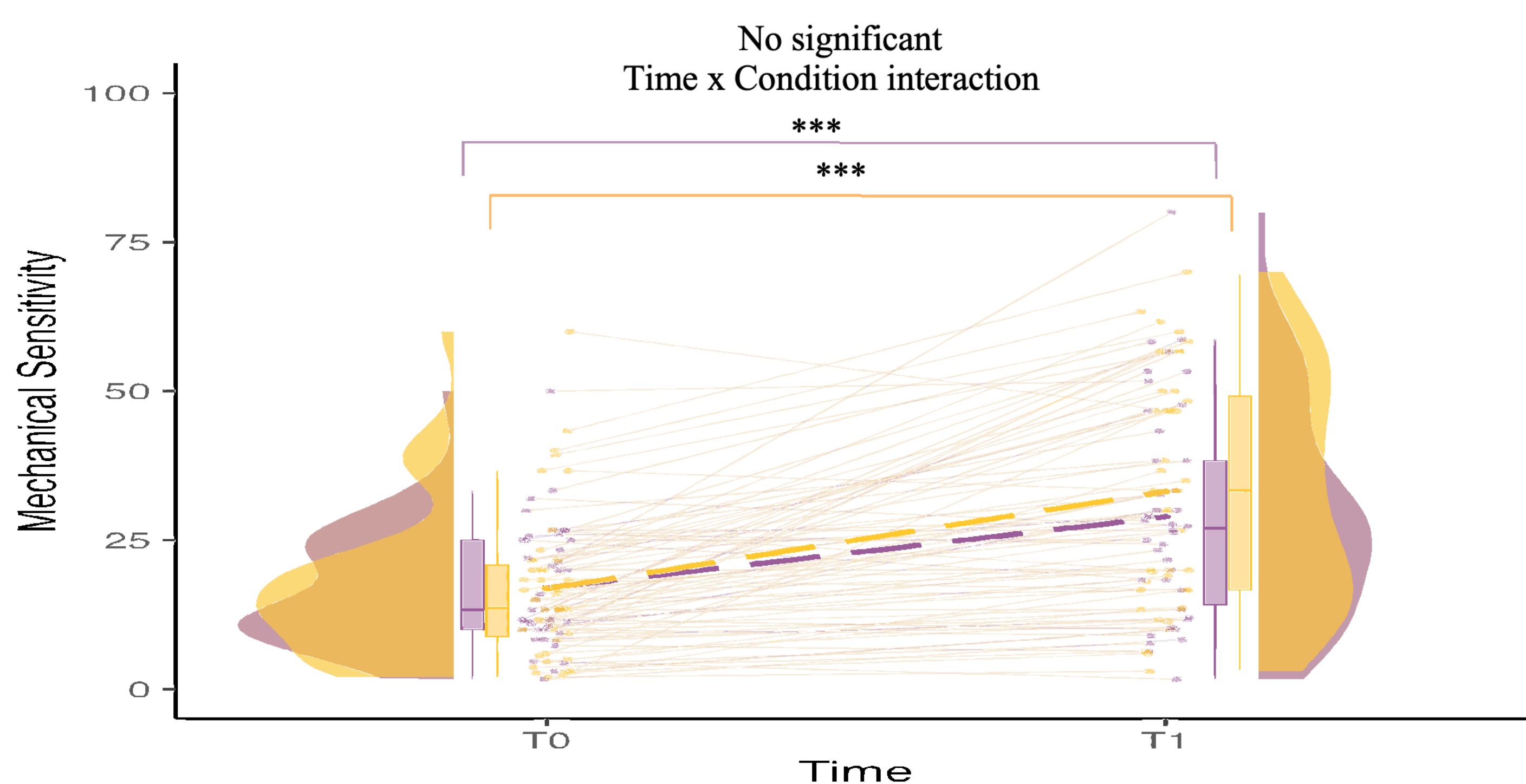
Accuracy: Mdn= 12, IQR=1, range= 3- 12
Difficulty: Mdn= 3, IQR= 11, range= 0-60



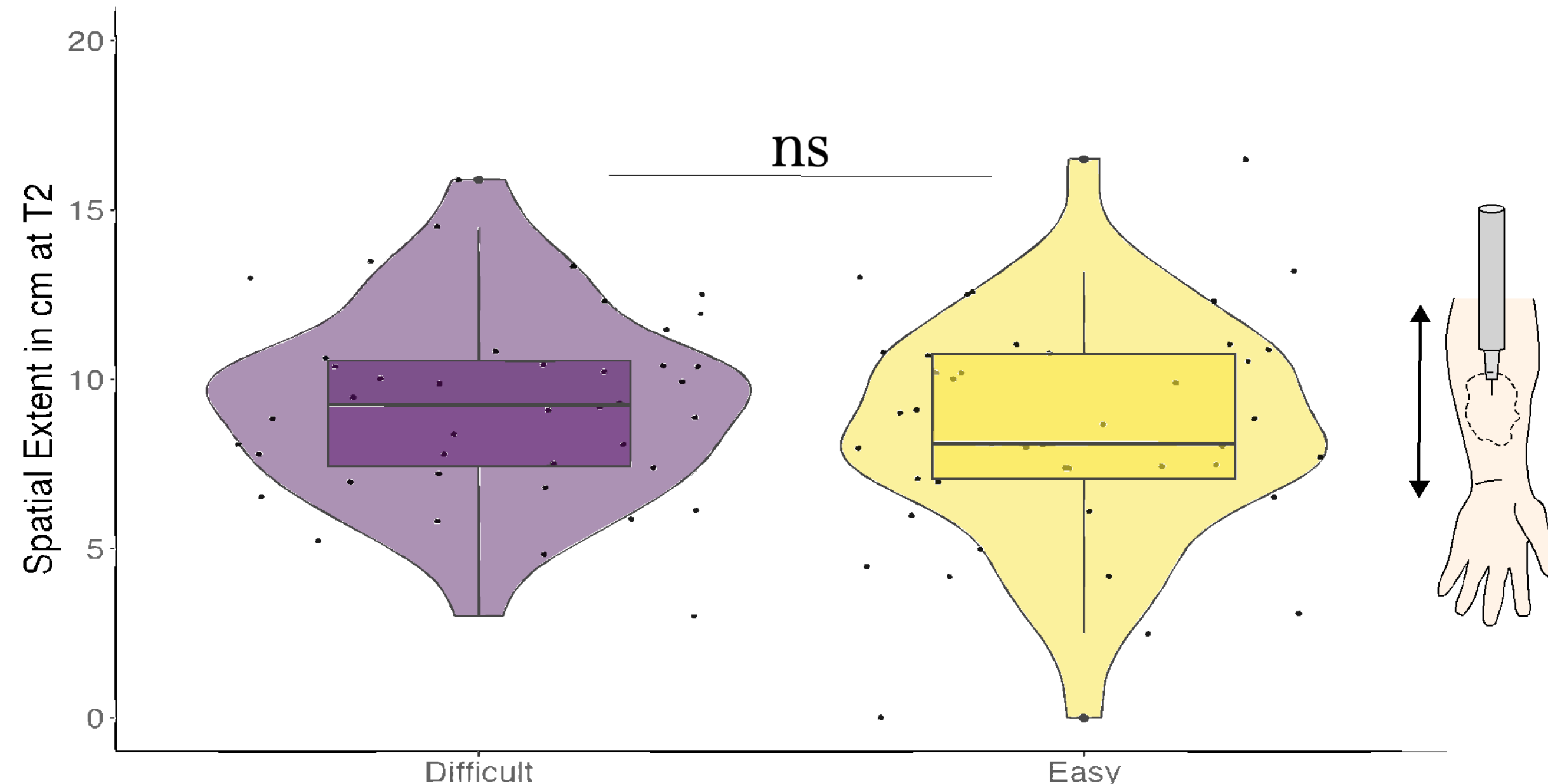
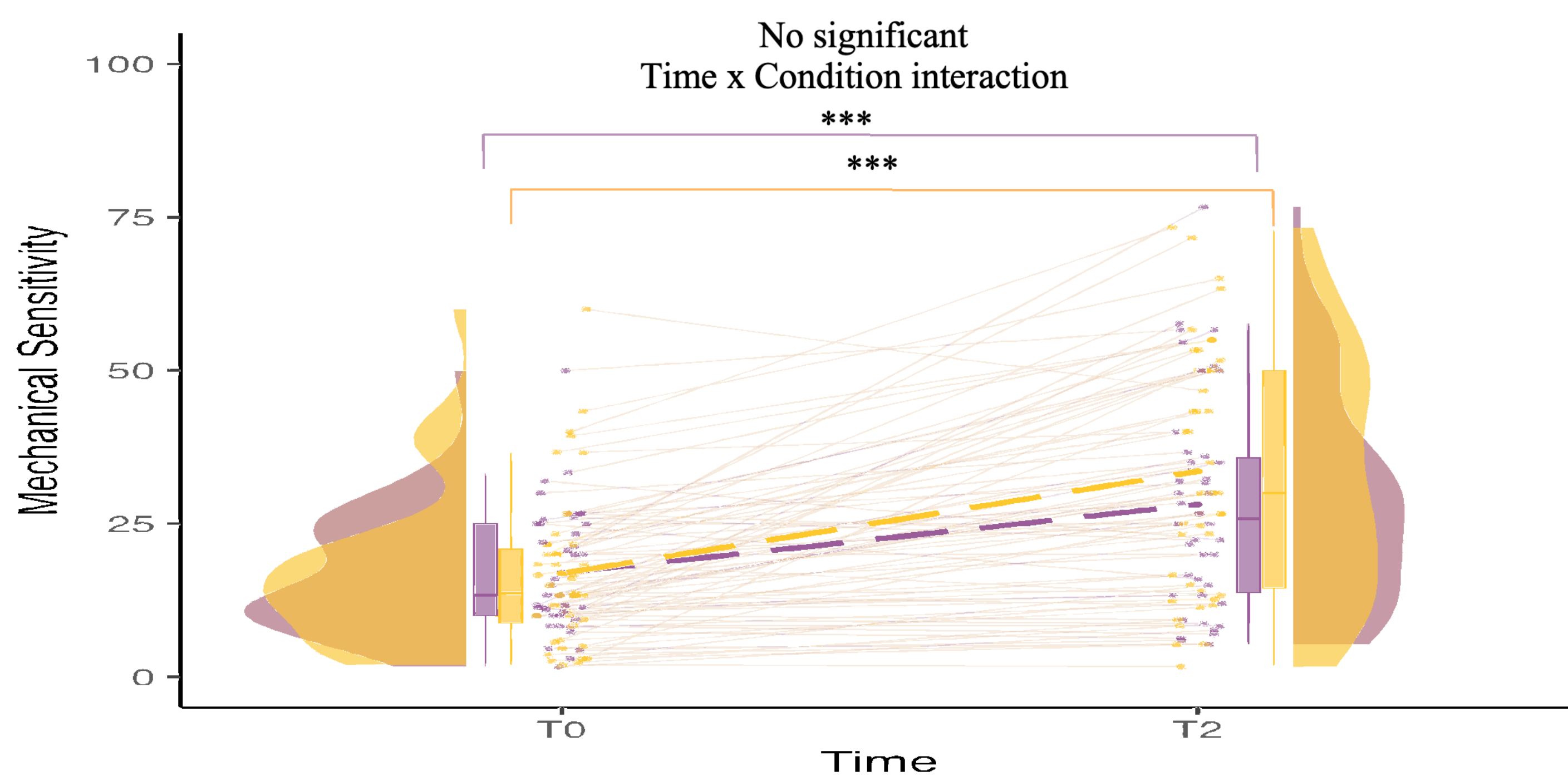
Results

Mechanical_sensitivity ~ 1 + Time + 1 | Subject + Time: Condition

T1



T2



Conclusion

We found no significant difference in the development of secondary hyperalgesia between the two groups, neither for the intensity of mechanical sensitivity or for its spatial extent. Furthermore, we did not find any significant difference between the two groups in pain perceived during the HFS. This leads us to hypothesize that, independently of the cognitive load, in both groups participants attended to the nociceptive stimuli similarly. Our results suggests that a top-down modulation through attention might not be sufficient to affect the development of secondary hyperalgesia.