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BACKGROUND

- Schizophrenia (SZ) is a neurodevelopmental disorder with debilitating cognitive deficits and enormous psychosocial and economic costs [1]
- Hippocampal abnormalities [2] and postmortem hippocampal losses [3] demonstrated in SZ
- Hippocampus plays a role in memory replay and consolidation [4,5]; impairments may be a source of memory deficits in SZ
- Specific mechanisms of memory deficits in SZ unclear.** We hope to characterize memory impairments that may eventually lead to targeted treatments.
- Hippocampal activity tied to offline performance improvements, or **micro-offline gains (MOGs)**, during inter-trial rest periods of motor learning task (Motor Sequence Task, MST) [6,7].
- We hypothesize that, due to hippocampal impairments and resulting memory deficits in this population, our SZ sample will display fewer MOGs than those of healthy controls (HCs).**
- This finding will demonstrate short-term consolidation deficits in SZ in addition to established oversleep memory consolidation deficits on this task [8,9,10].

METHODS

- Participants typed sequence of numbers as quickly and accurately as possible (Figure 1a) for 12 30-second training blocks with interspersed 30-second rest blocks (Figure 1b).

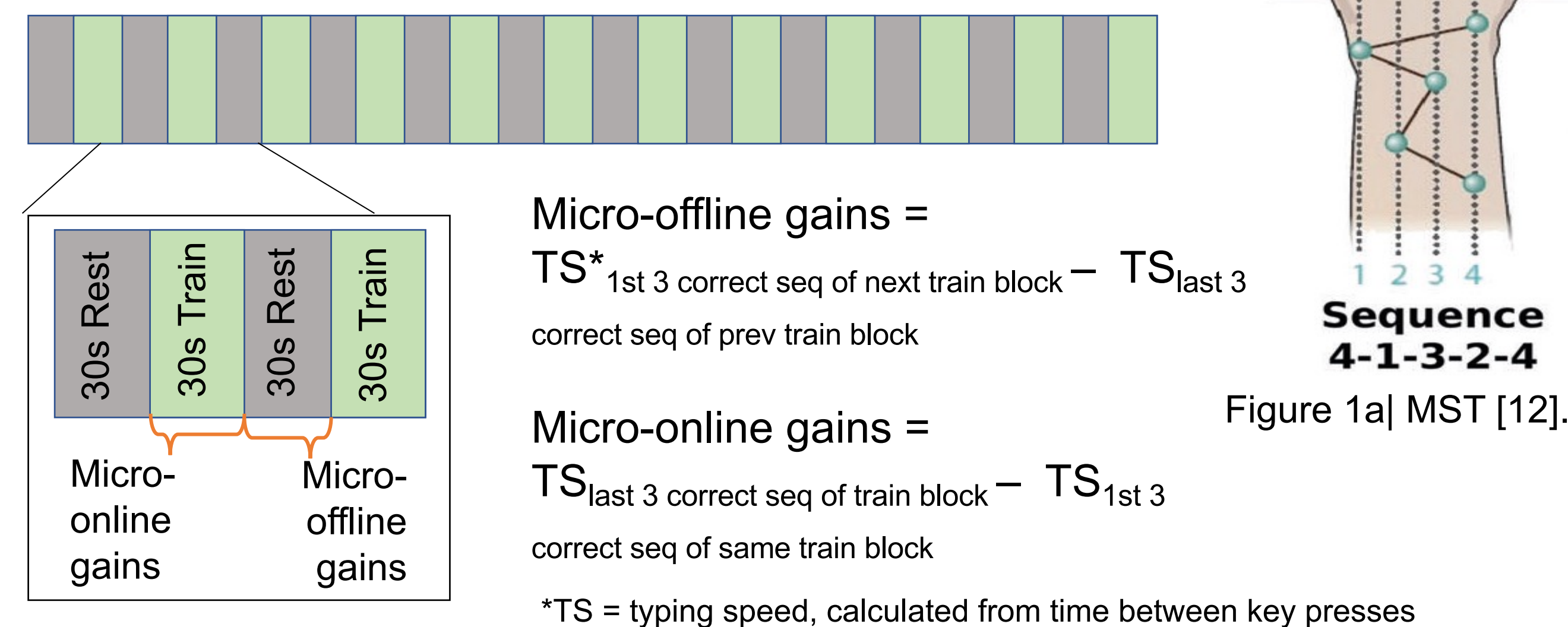


Figure 1b| Structure of MST blocks. Adapted from Bönstrup et al. (2019)

DISCUSSION

- Our completed group analyses replicate findings by Bönstrup et al. (2019) that MOGs are the primary contributor to performance improvement in healthy controls.
- Preliminary analyses support our hypothesis that SZ patients will show lower MOGs relative to online gains in contrast to healthy controls.
- In SZ, we expect that reduced MOGs reflect hippocampal dysfunction.
- In the context of intact learning during MST training, the lack of MOGs would suggest an alternate compensatory strategy for short-term learning.

ACKNOWLEDGMENTS & REFERENCES

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PARTICIPANTS

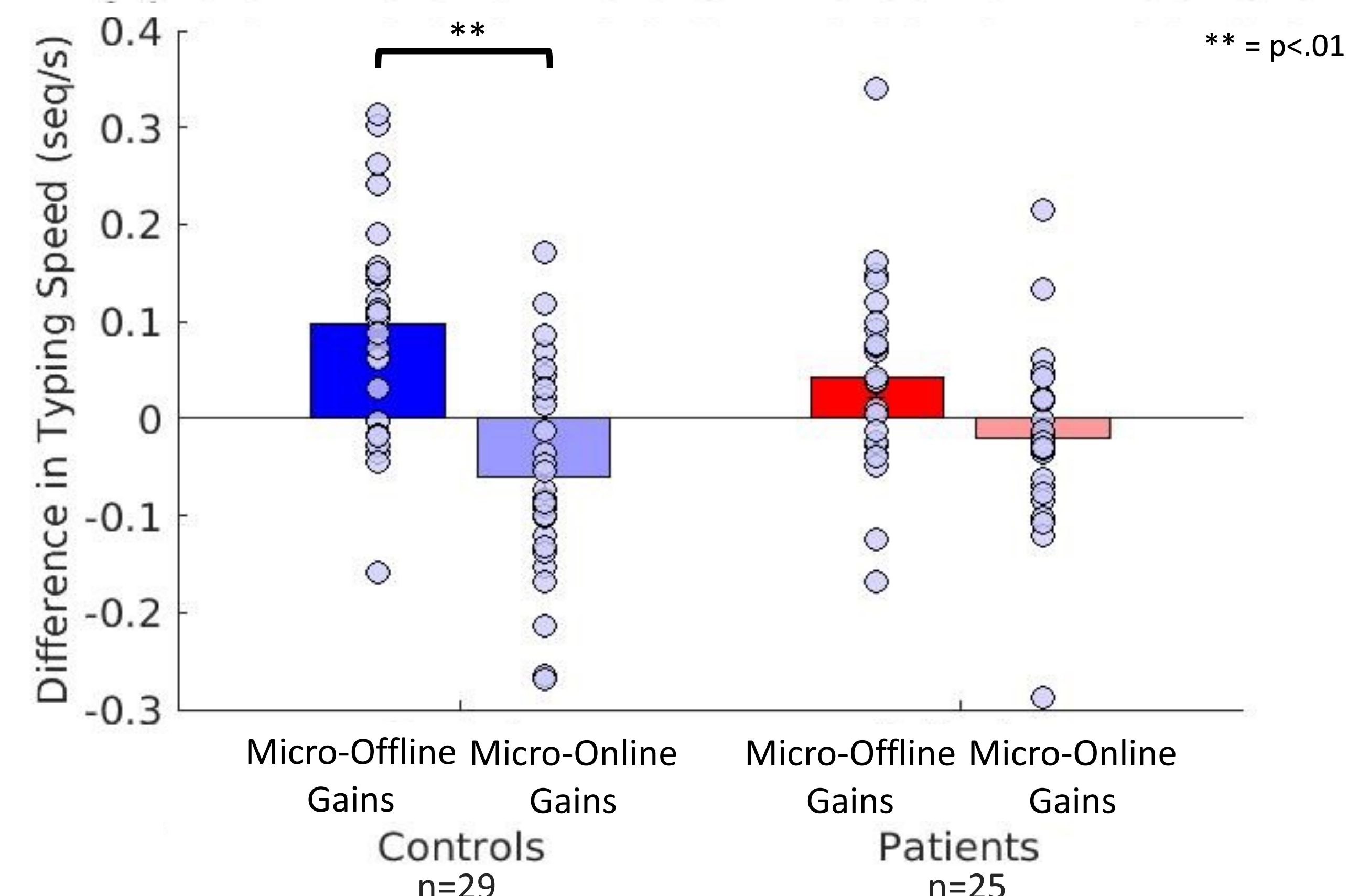
Table 1| Participant characteristics

	Control (n=29) M±SD	Schizophrenia (n=26) M±SD	t	p
Age (years)	30±6	32±8	1.16	.25
Sex	8F/21M	5F/21M	$\chi^2=.47$.54
Mean Parental Education (years)	15±3	14±3	-1.13	.27
Handedness*	66±53	81±23	1.25	.22

*Modified Edinburgh Handedness Inventory [11].

RESULTS

Micro-Offline and Micro-Online Gains in HC and SZ



	Micro-Offline Gains in HCs	Micro-Online Gains in HCs	Micro-Offline Gains in SZ	Micro-Online Gains in SZ
Mean ± SEM (seq/s)	.097 ± .02	-.059 ± .02	.042 ± .02	-.019 ± .02

- Significantly higher micro-offline gains compared with micro-online gains in HCs (T=3.92, p=.0005)
- HCs displayed trend of higher micro-offline gains than those of SZ patients (T=1.90, p=.06)
- SZ patients and controls showed no deficit in learning this task during training (F(1,50) = 1.37, p = 0.25).