



Reversible Emerging Neuropsychological Pattern in Chronic Intractable Migraine

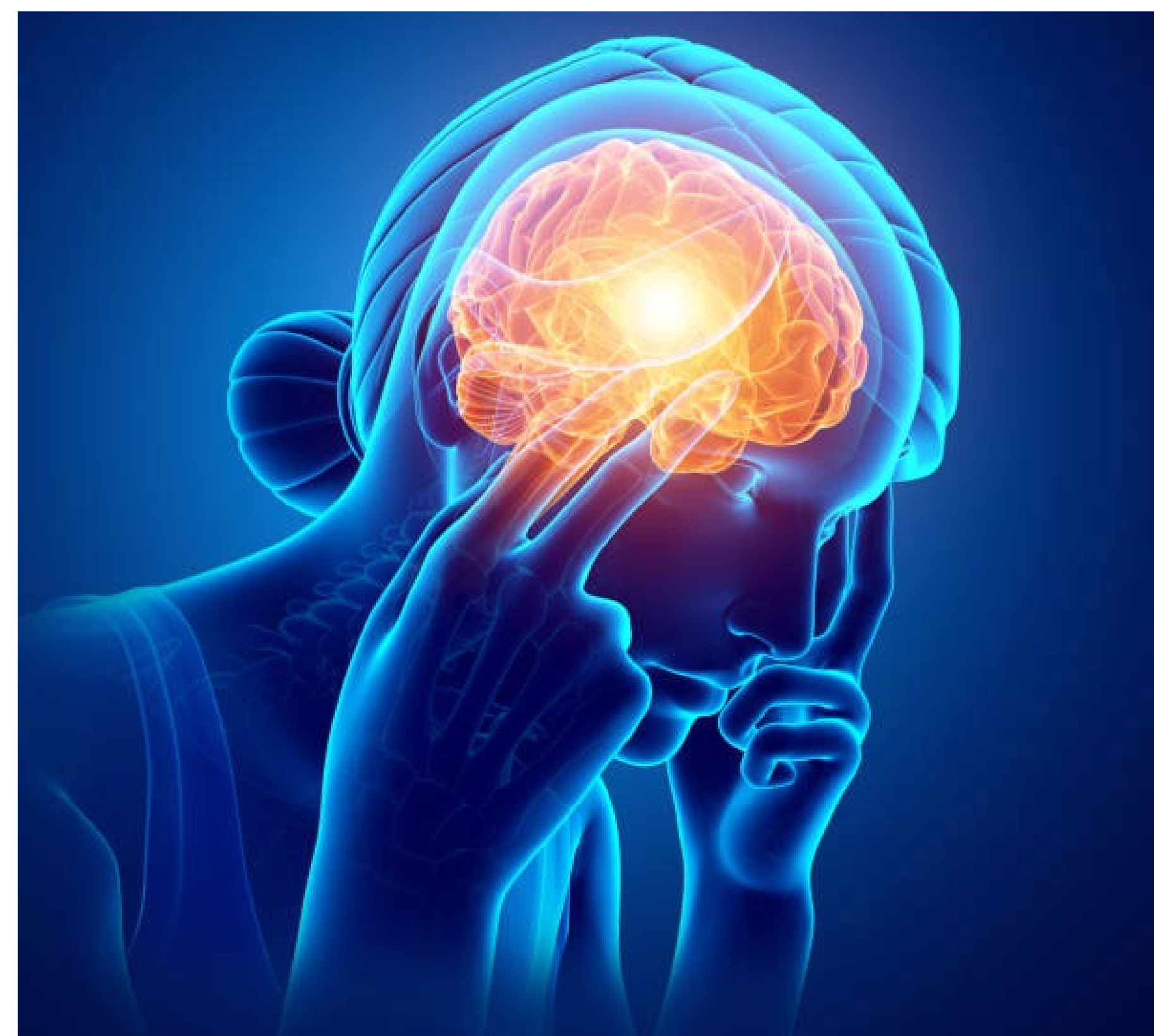
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Background

Migraine is the most common neurological disorder in the world. It is a multisystemic, multicausal condition characterized by increased neuronal activity in various brain regions including the hypothalamus and trigeminal nerve complex. This study attempts to identify a common neurocognitive profile amongst those experiencing chronic intractable migraine specifically.



Picture 1. Stock image from iStock Images representing pain from a migraine.

Methods

We evaluated 36 patients with severe, chronic migraine patient poorly responsive to traditional pharmacotherapy (> 20 headache days/months for >6 months). Each patient was given a neuropsychological evaluation to measure 12 cognitive domains. The same patients were retested following resolution of migraine symptoms (<5 headache days/month for >3 months).

Results

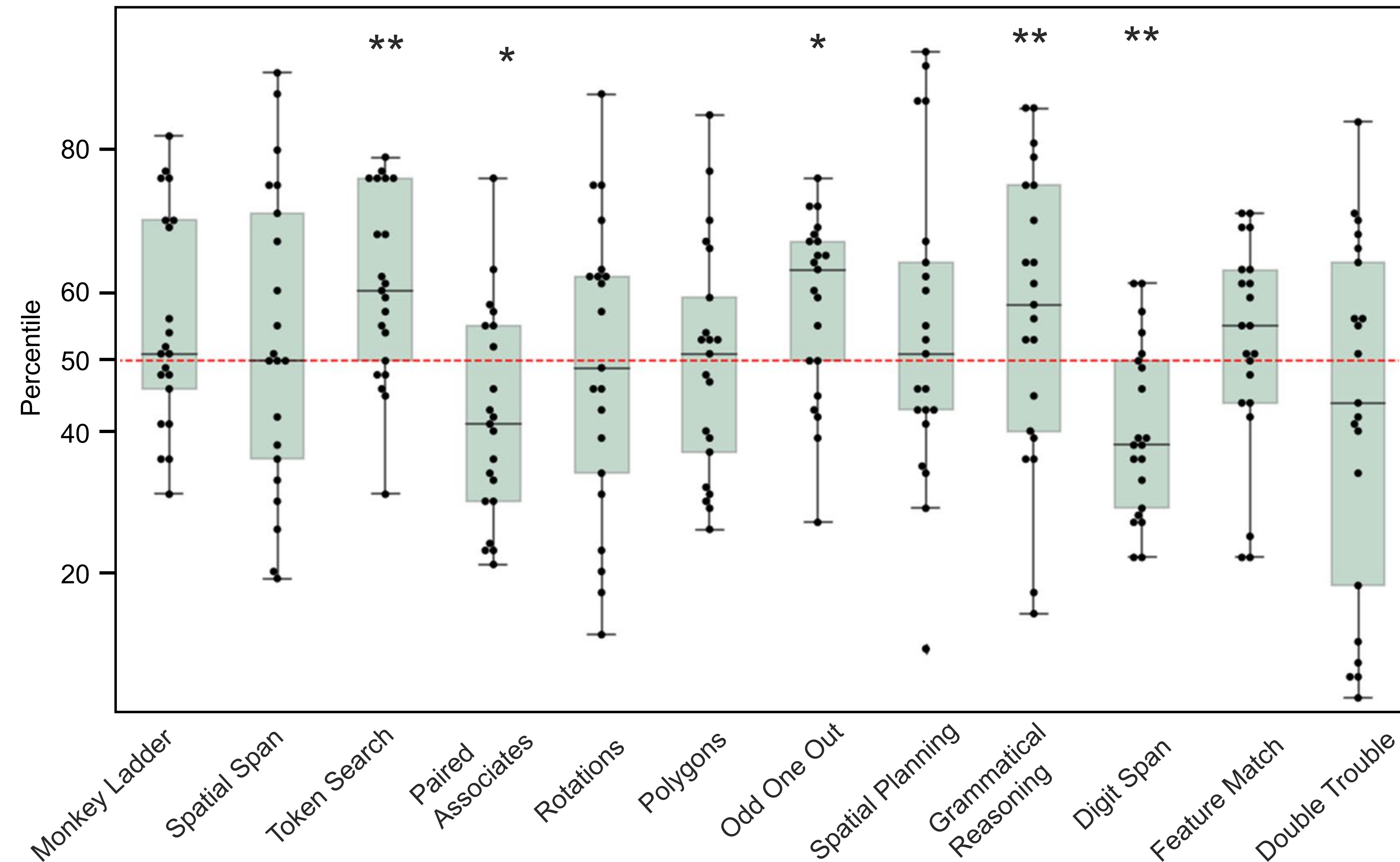


Figure 2. Initial neurocognitive scores for each of 12 sections for 8 patients. To account for individual average abilities, scores are compared to each individual's average score. Wilcoxon test * = $p < 0.05$, ** = $p < 0.01$

Initial testing revealed a distinct neurocognitive pattern of increased function in Spatial Awareness and Spatial Memory ($p=0.0031$) and Deductive Reasoning ($p=0.0042$) with decreased function in Episodic Memory ($p=0.0194$), Verbal Short-term Memory ($p=0.0027$) and Response Inhibition ($p=0.0130$). Following three months of migraine resolution, Episodic Memory and Response Inhibition deficits resolved entirely with Verbal Short-term Memory remaining low.

Chronic migraine patients have neurocognitive deficits that can be restored with treatment of migraines

Results Continued

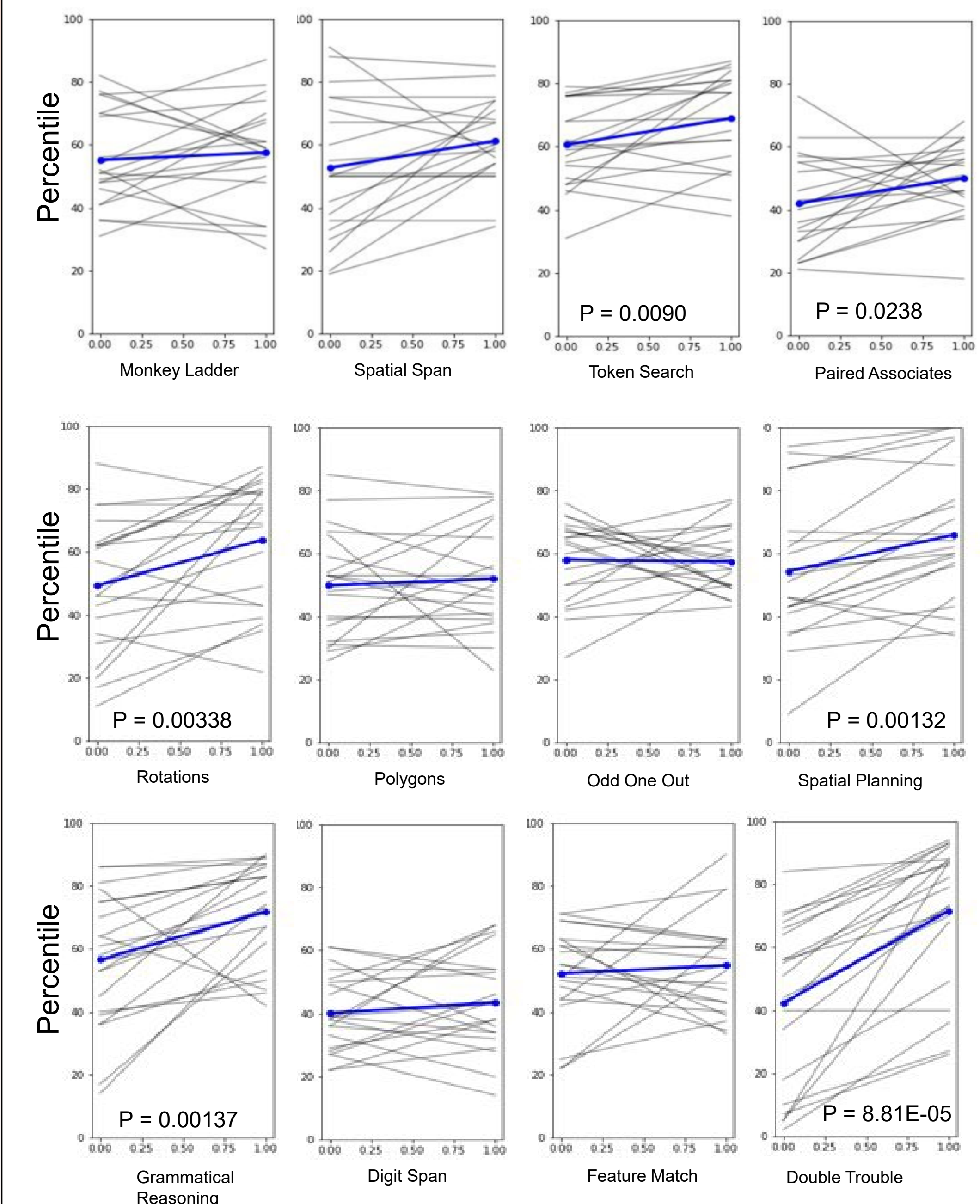


Figure 3. Changes in patient scores from before to after treatment for migraines. X-axis 0 represents before treatment, 1 represents after treatment. Black lines show individual values, bold blue line shows average values. * T-Test $p < 0.05$

Conclusion

Following three months of migraine resolution, Episodic Memory and Response Inhibition deficits resolved entirely with Verbal Short-term Memory remaining low. This neurocognitive pattern is consistent with clinician observations of chronic migraine patients with high functioning neurocognitive profiles with deficits in effecting memory and emotional affective circuits. This data could provide additional details regarding the role of chronic migraine in neuropsychiatric disorders and possibly provide further insight into prophylaxis and treatment options.

