

The Longitudinal Relationship Between Brain Activity and Executive Functioning in Glioma Patients

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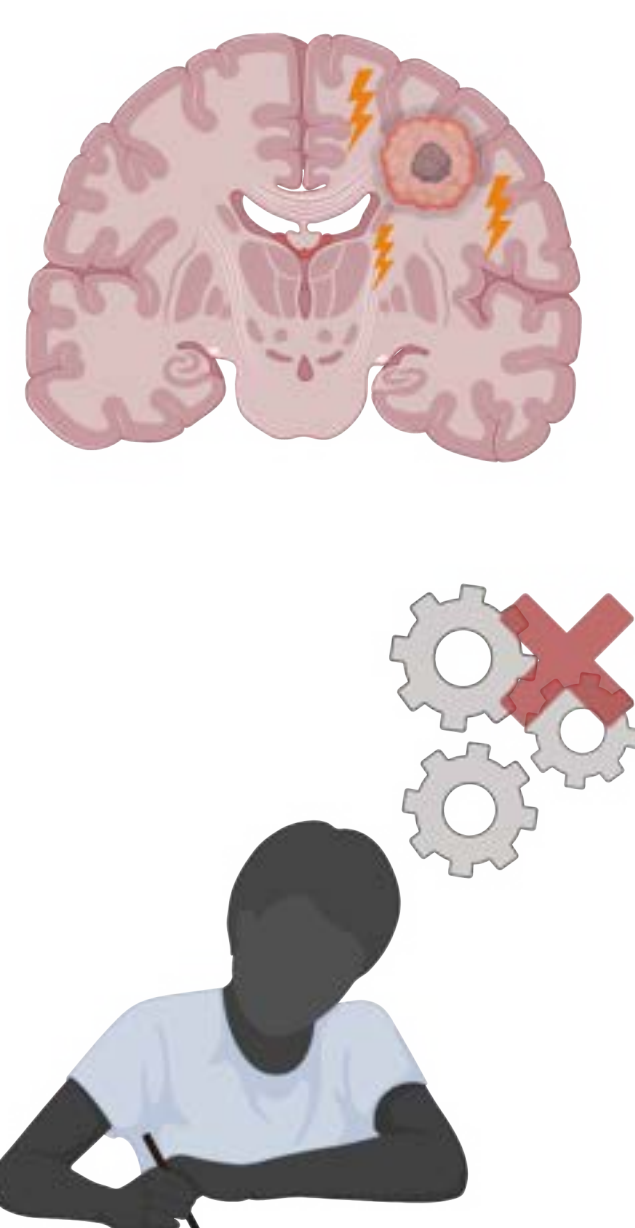


INTRODUCTION

Patients with glioma often experience cognitive problems, including executive functioning (EF) deficits.

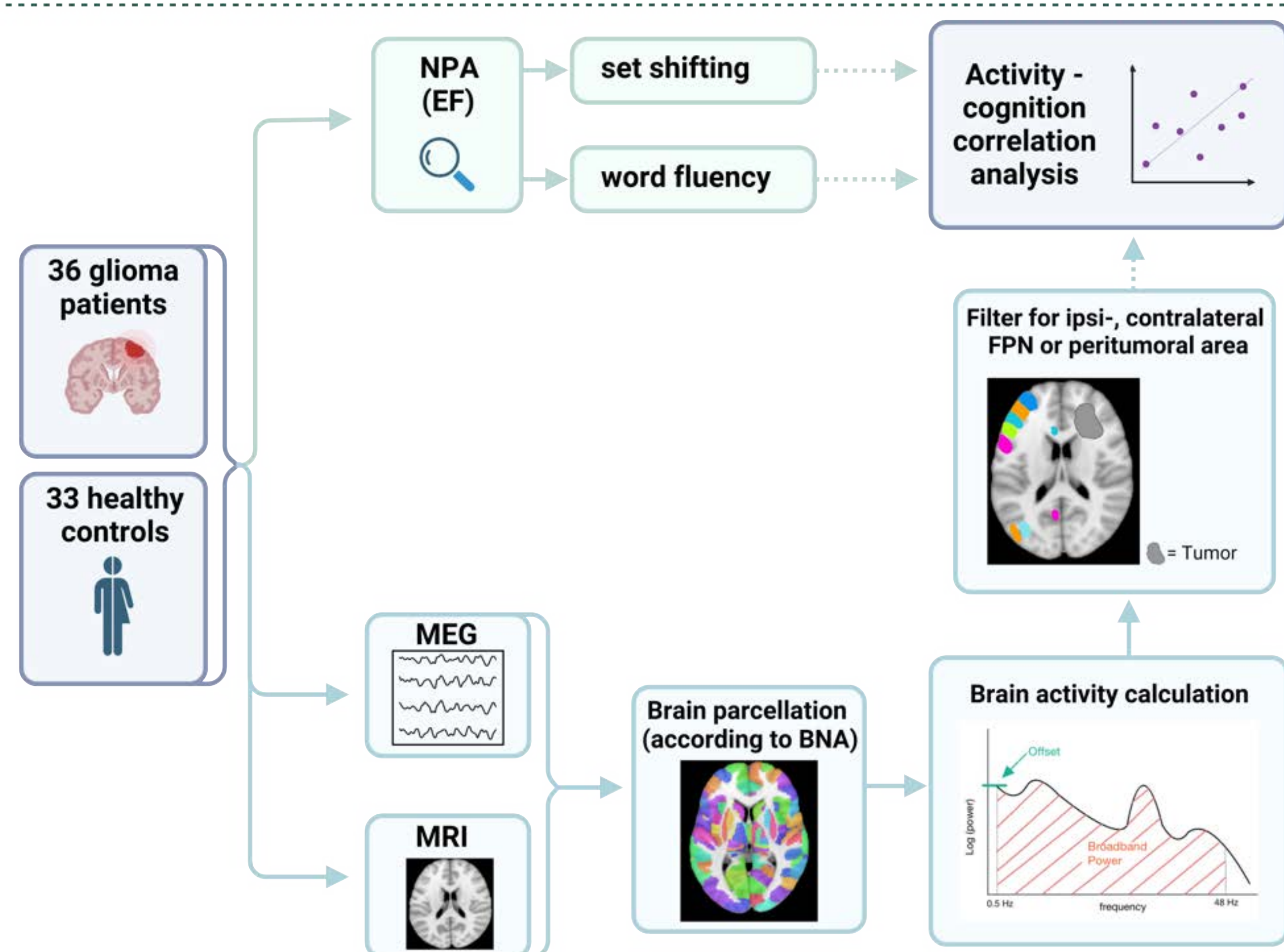
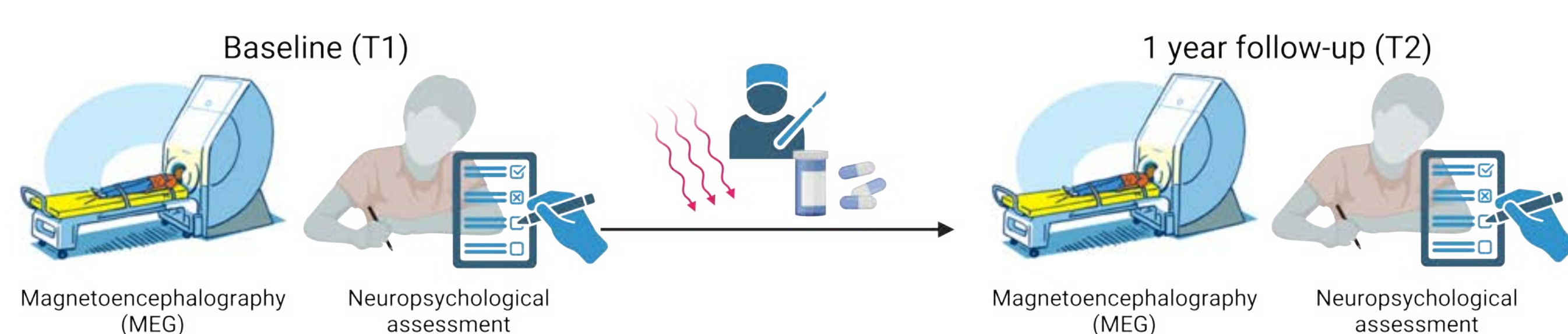
There are bidirectional interactions between gliomas and their neuronal surrounding, promoting neuronal hyperactivity.¹

It is unknown whether pathological activity informs cognitive deficits.



AIM: To investigate the relationship between activity in the frontoparietal network (FPN) and EF in glioma patients.

METHODS

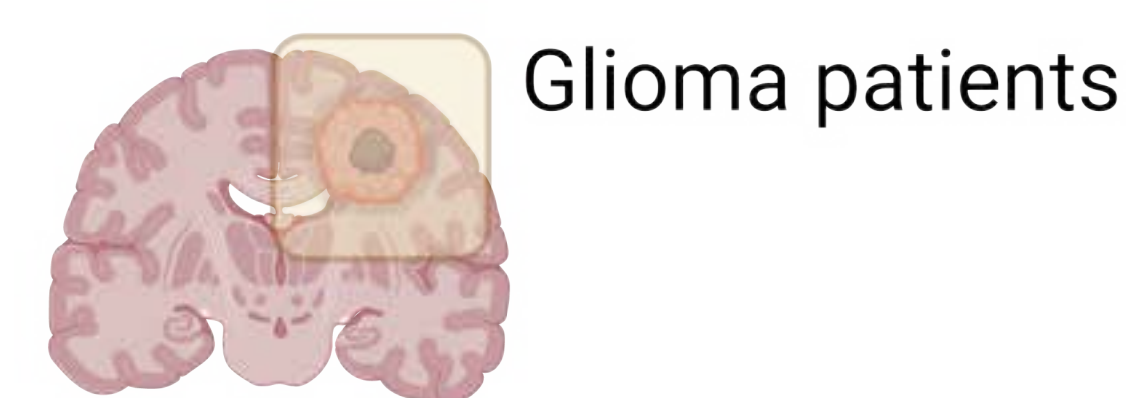


CONCLUSION

Resting-state brain activity in the right FPN relates to cognitive functioning in healthy controls.

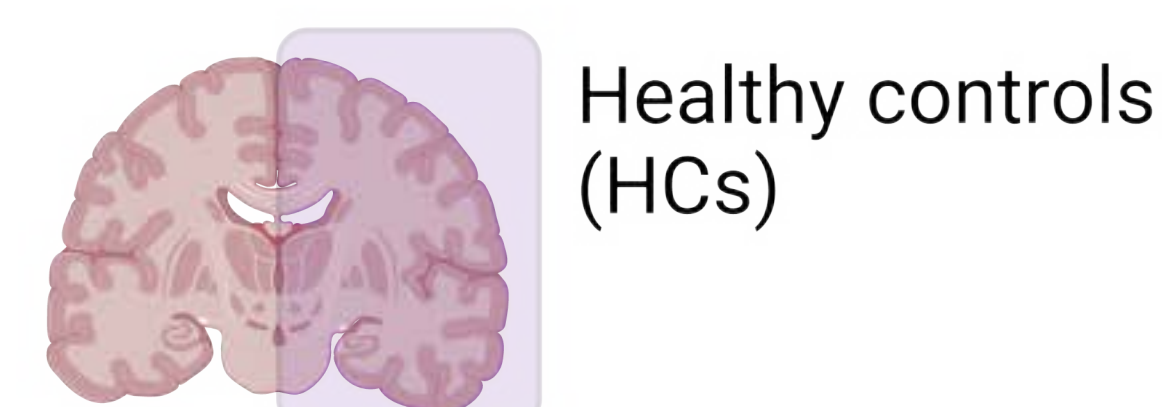
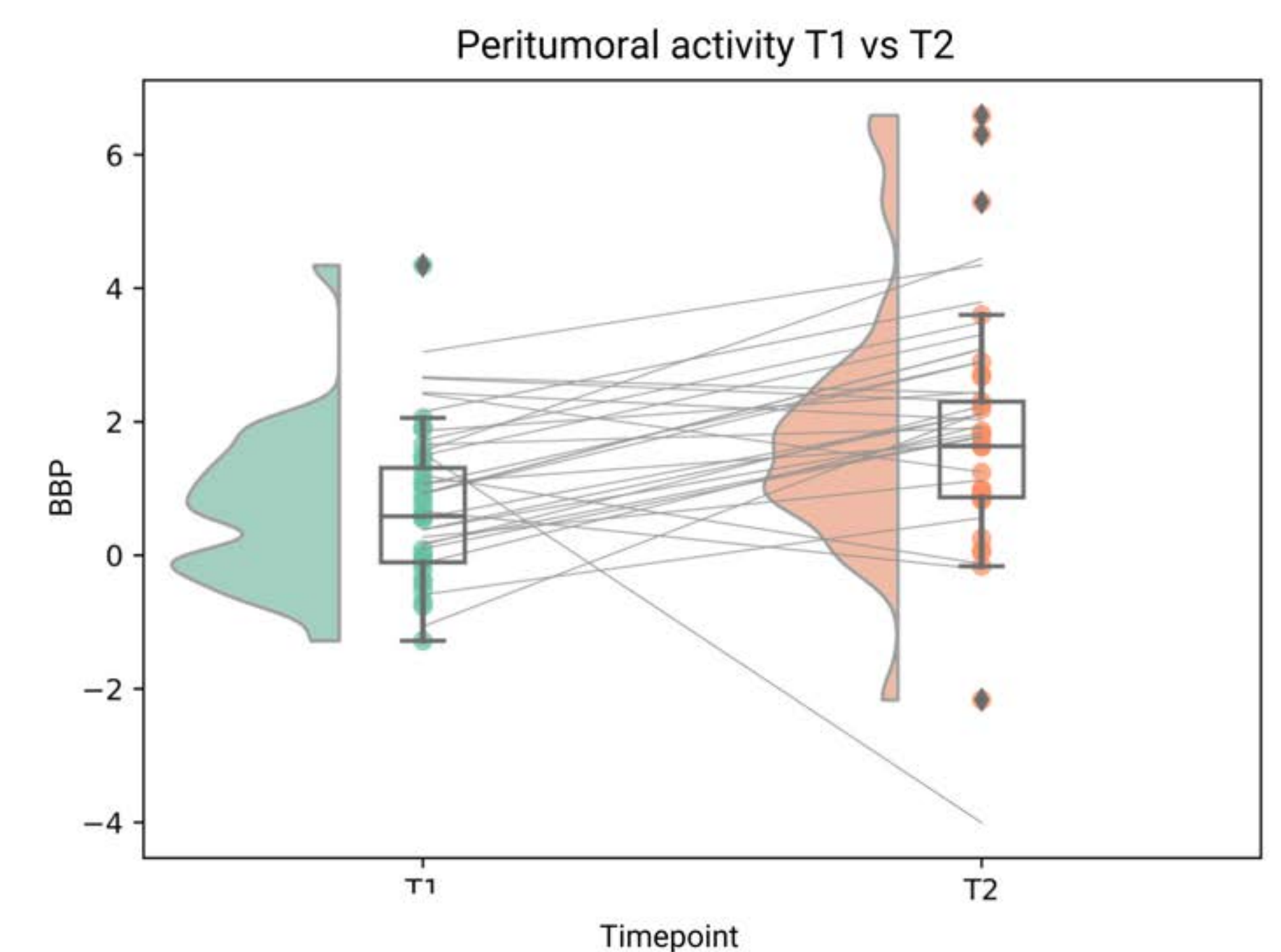
In patients, activity in the peritumoral area or the FPN does not seem to hold particular relevance for EF.

RESULTS

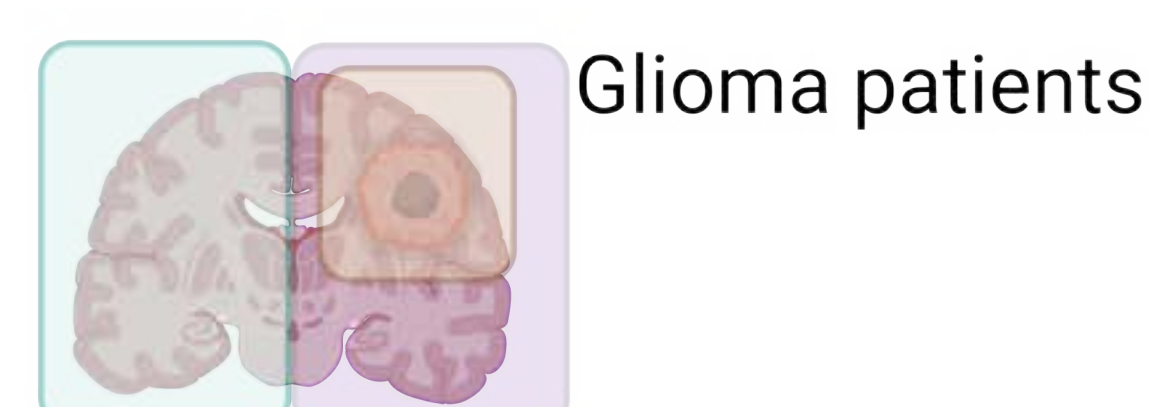
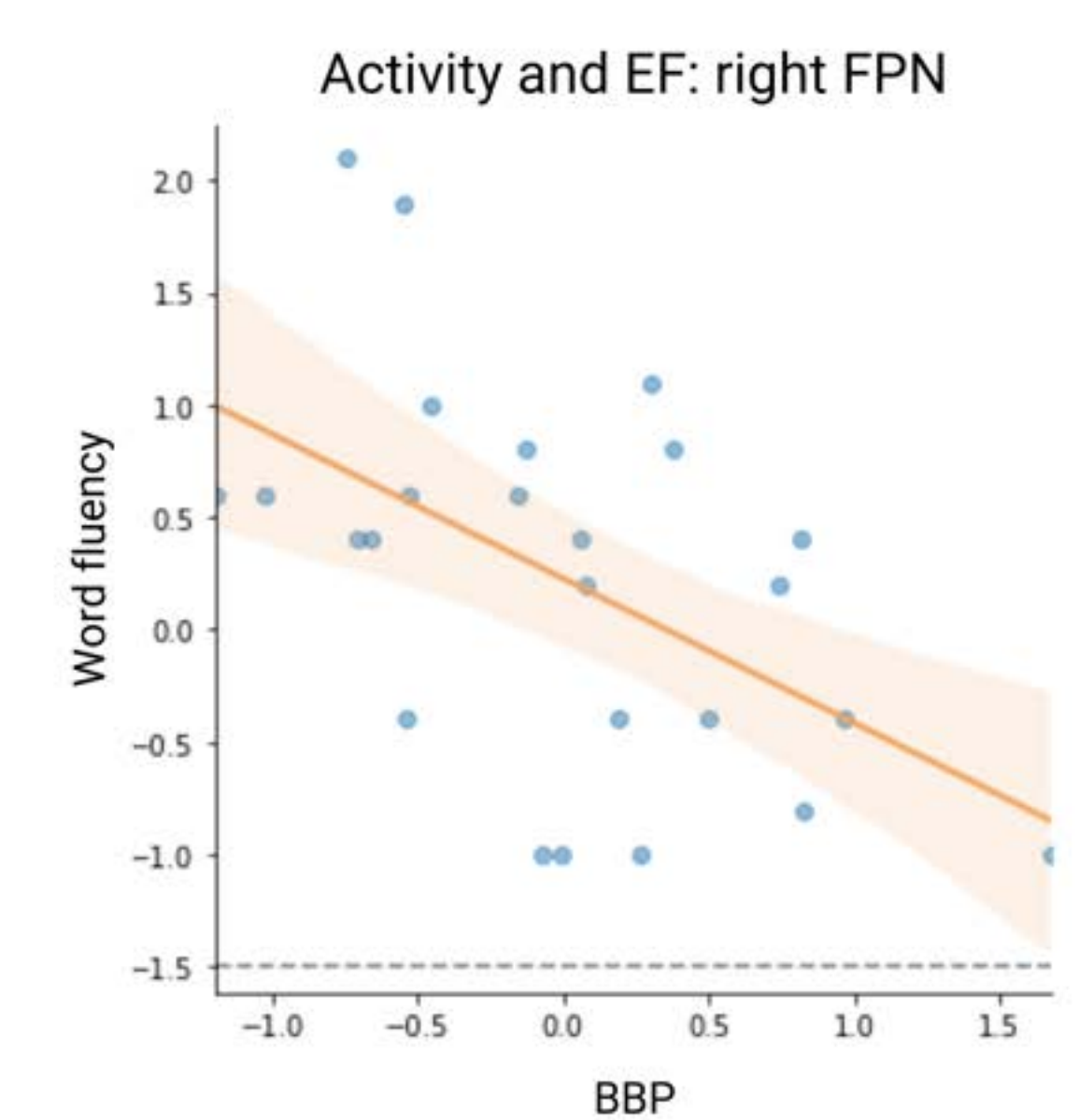


Peritumoral activity increases from baseline to the one-year FU.

Activity in the ipsi- and contralateral FPN does not change.

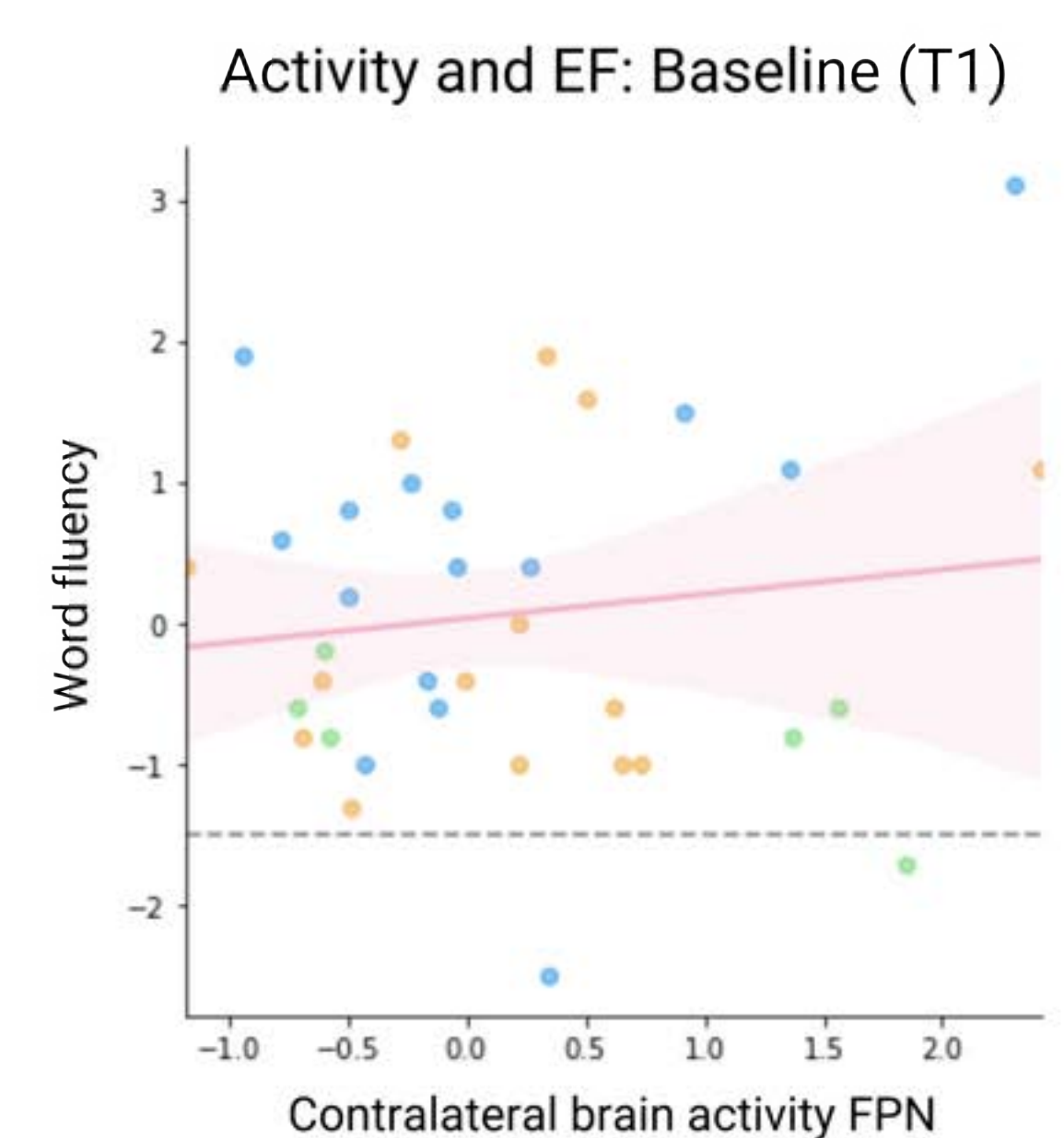


In HCs, higher right hemispheric FPN activity relates to poorer EF performance.



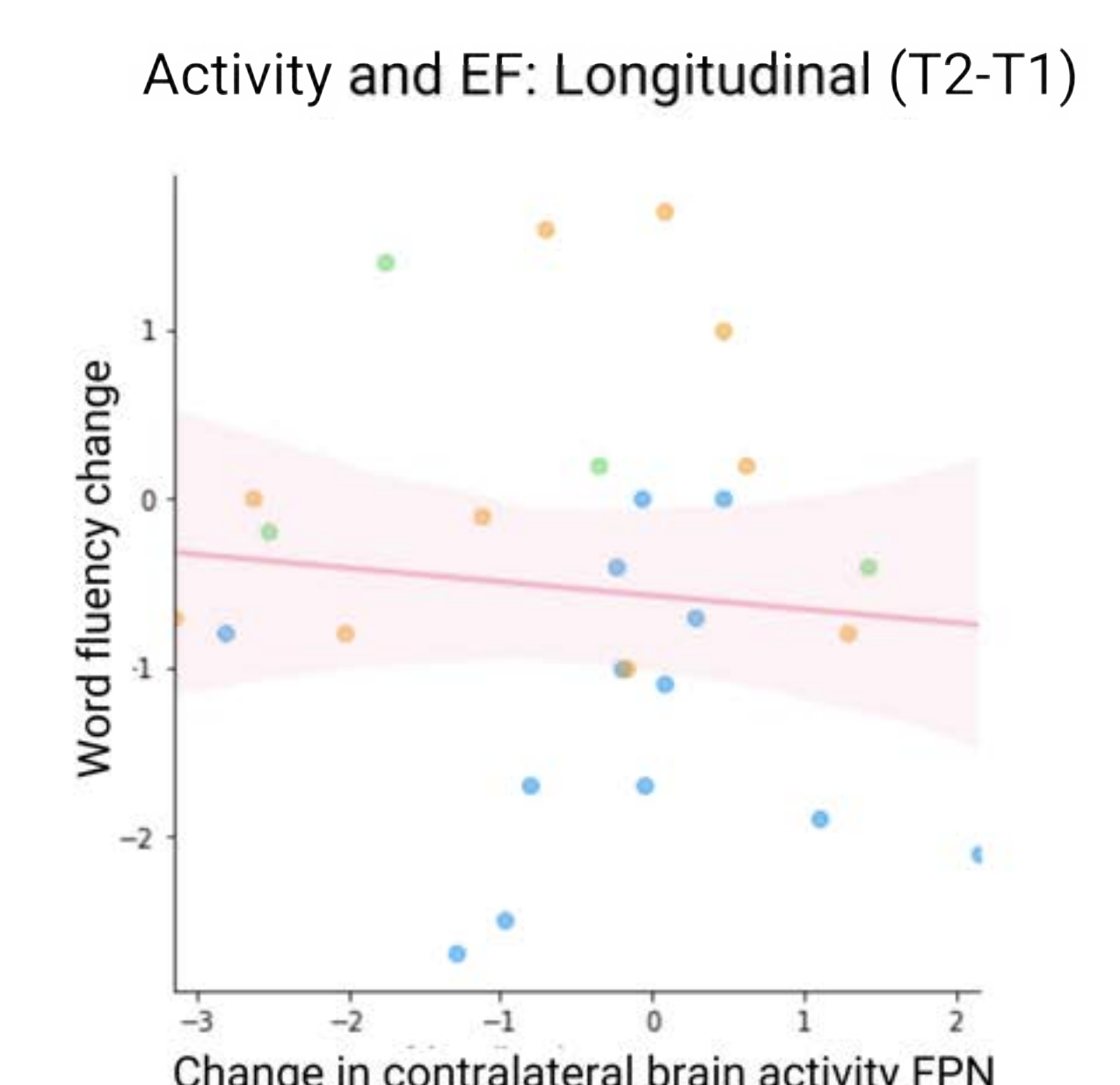
Activity does not relate to EF in glioma patients at baseline or longitudinally.

Potentially, the characteristics of the FPN, such as its integration, are more relevant to cognition in glioma.²



Network deviations relevant to cognition, do not necessarily go hand in hand with pathological activity: they co-occur in a complex manner in glioma.³

Possibly, this explains why activity does not relate to EF in these patients.



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